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FILMS
IN BUSINESS
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FILMS IN BUSINESS AND INDUSTRY

by HENRY CLAY GIPSON

President, Filmfax Productions

Formerly Production Director, Films, Incorporated

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FILMS IN BUSINESS AND INDUSTRY

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To
E. W. G.

PREFACE

THE NECESSITY for training millions of men in the intricate procedures of modern war gave the motion picture an opportunity to prove conclusively its ability to transmit thought rapidly and thoroughly. Films were used in enormous quantities for many purposes that parallel peacetime applications. Thus it is that the nontheatrical film faces a great new day.

This book is designed not only to tell when and how to use films but to give a basic understanding of the grammar of the screen—the how and why of film construction. It does not tell how to make a motion picture, but it does tell how writing, photography, sound recording, and film editing combine to form the most potent medium for the transmission of thought since the invention of the printing press.

The reputable producer deals not in mystic secret processes but serves by providing a scientific business machine directed by a group of creative artists. A comprehension of the producer's problems by those who purchase and use films can lead the way toward new and greater fields for the industrial motion picture and slidefilm.

Specialists who work in the various subdivisions of production can profit by a broader understanding of the film medium. It is hoped, therefore, that this simple, nontechnical explanation of film utilization and production procedures will benefit the industry as a whole.

Not only is appreciation expressed to those who have supplied material that is incorporated in this book and for which credit has been given in the appropriate places, but

especially is credit given to O. H. Coelln, Jr., and to the following organizations, in serving which the author had the opportunity to learn much of the art and science of films:

N. W. Ayer & Son
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Encyclopaedia Britannica Films
Films Incorporated
Ford Motor Company
General Electric Company
Grace Line
British Overseas Airways
Springer Pictures Incorporated
J. Walter Thompson Company
Western Electric Company
State of Michigan
United States Department of State
United States Navy.

HENRY CLAY GIPSON

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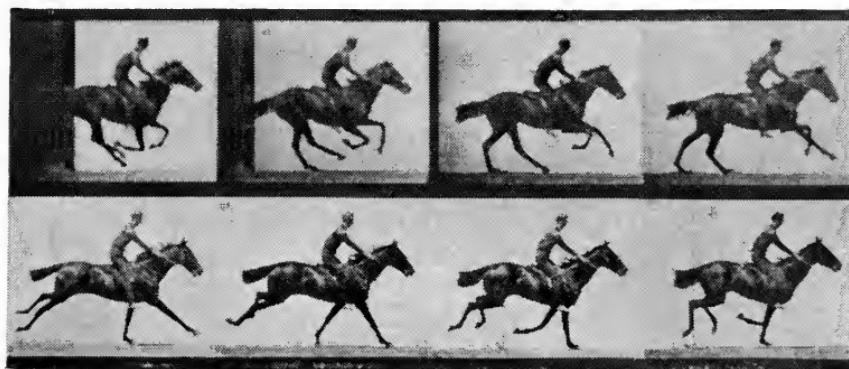
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Chapter 1

HALF A CENTURY OF PROGRESS

IT WAS not until motion pictures had become an international language that educators, propagandists, and businessmen began to understand thoroughly the great power of the screen. Nations were seeing each other; history and geography were being taught; habits and customs were being formed; yet all this was incidental to the entertainment provided by the theatrical motion picture.

Although the potentialities of the motion picture as a means of communication in business and education were slow in attaining general recognition, it is interesting to note that the early scientists who developed the process envisioned its future almost exclusively in the fields of science and education. In fact, Thomas Edison at one time predicted that films would replace textbooks within "ten years."



The earliest recorded experiments in giving motion to photographs were made at Palo Alto, Calif., in 1872. Here Dr. Eadweard Muybridge succeeded in making a series of photographs on glass plates, recording the movements of a



Museum of Modern Art, New York.

horse's legs. This was accomplished through the use of a series of cameras taking pictures at split-second intervals. He later developed a method for producing visual duplication of live action by projecting individual photographs on a screen in rapid succession. For these experiments, he photographed such simple sequences as a girl jumping over a stool and a nude walking. Ten years later a Frenchman, Dr. E. J. Marey, invented the first camera capable of taking through a single lens a series of photographs at intervals short enough to create the illusion of motion. However, the invention of photographic film by Eastman in 1888 and its use in Edison's kinetoscope the following year were the practical beginnings of the motion picture. The film arrived confined in a small box with showings restricted to one person at a time. The projection of a moving photographic image at Koster and Bial's Music Hall in New York City on Apr. 23, 1896, really marked the beginning of the motion picture as we know it today.

Almost at once an enterprising publicist saw the great advertising possibilities offered by the motion picture. He erected a large outdoor screen on a building overlooking Herald Square, New York City, where, in 1897, the first sponsored motion pictures made their debut. The first advertisers were Haig & Haig Whiskey, Maillard's Chocolate, and Milwaukee Beer. From dusk until midnight the pictures were flashed on the screen, interspersed with short entertaining sequences. The public gathered in such numbers

to witness the films that traffic was blocked. After three days the police, prompted by irate music-hall proprietors whose business was being seriously affected, called a halt to the showings. Two years later the North West Transportation Company commissioned a photographer to make 8,000 ft. of film covering the Alaskan gold rush for showing at the Paris Exposition of 1900. The contract price for this photography was \$5 a foot.

The tremendous entertainment possibilities of the screen were quickly and steadily exploited by American showmen. For the first decade and a half entertainment films were crude one-reelers and were derisively referred to as "galloping tintypes." Yet during this same period scientific pictures were produced that are still of interest and value. The action of insects was photographed, and late in 1896 Dr. Marey analyzed heart action by photographing the successive phases of a tortoise's heartbeat. In 1900 another French scientist successfully filmed the process of digestion in a frog's stomach by what was probably the first use of the

Motion pictures were first used for advertising purposes in 1897. The sponsor's name was carried on a banner beneath which a short skit was enacted.



X ray in motion pictures, and microphotography preserved in motion many of the hitherto elusive processes of nature.

America was becoming advertising-conscious in the early years of the century, and the regular assembly of large audiences to view motion pictures such as the noteworthy French production "Cinderella" (which ran a full 4 minutes) and the subsequent American favorites, "The Great Train Robbery" and "The Eagle's Nest," naturally suggested the theatrical screen as a medium for general business promotion. Crude advertising shorts were made to replace the Indian medicine man in selling patent medicines, and the public, interested in any picture that moved, gobbled them up. But with the gradual increase in quantity and improvement in quality of the entertainment films, the colored lantern slides came into their own. They were shown on the screen during intermissions when the projectionist was threading or repair-



Museum of Modern Art, New York.

Advertising slides that accompanied early theatrical motion pictures were the forerunners of today's screen advertising and of business slidefilms.

ing his single projector. Forerunner of the slidefilm now so widely used by industry, the lantern-slide type of advertising became an accepted part of the program in the neighborhood motion-picture theater.

Early newsreels supplied factual information to a news-hungry world. President McKinley's inauguration in 1897 was the first to be seen via the motion picture, and audiences soon came to expect screen reporting that documented and

"The Workman's Lesson," an industrial safety film produced in 1912, stressed the lesson of "the empty coat sleeve." It played in 7,500 theaters.



United States Steel Corporation.

illustrated the headlines in their newspapers. However, the application of the motion picture to the more specialized fields of communication in industry and education was extremely slow, largely because there were no 16-mm films or projectors.

The United States government was one of the first to appreciate the advantages of the motion picture for dispensing information. At the Jamestown Exposition in 1907 the U. S. Reclamation Service exhibited several films, and the Department of Agriculture produced the first in its continuing series of informative films a year later. The next decade, which witnessed such epic theatrical productions as "The Birth of a Nation," produced little in the nontheatrical film field, although such organizations as International Harvester Company, Swift & Company, the National Association of Manufacturers, and the United States Steel Corporation experimented with films. Some of these experiments were, however, on an impressive scale. The 1912 U.S.

Steel film "An American in the Making" required that company of 60 people with all necessary equipment be sent from New Rochelle, N.Y., to Gary, Ind. The works of the Illinois Steel Company with 2,000 hands were placed at the disposal of the film producer in order that realistic effects might be properly secured.

During the First World War 62 information films were made by the U.S. Army; a few were made by the Navy; and many productions such as those of the Bureau of Commercial Economics and the Community Motion Picture Bureau were used in the war effort. Although the use of these films was very limited compared with present-day standards, their success generated optimistic predictions about a new age of postwar education. A magazine, *Visual Education*, was founded, and 50,000 copies distributed, but the public mind was not ready for the "new" innovation, and the films that were available were quickly and poorly made, giving the medium little opportunity to demonstrate its worth.

In the early twenties the theatrical motion picture became the center of a heated controversy, civic and religious groups claiming that films were doing social harm with their frank portrayal of the flapper age. It was felt that the morals of children were being undermined. Extensive surveys were undertaken. Results shocked the nation, for it was demonstrated that films which glorified evil were definitely responsible for juvenile delinquency. The widely published and much discussed facts led immediately to a voluntary censorship of theatrical motion pictures by the industry.

Although the findings of the surveys were largely negative in character, it was clearly established that we learn a surprising number of facts from a motion picture and retain this knowledge for a long time. It was found that our social attitudes and our actions are measurably changed by what

we see on the screen. Educators awoke to the fact that in the film they had a powerful new tool. But although the desirability of the film method of teaching was clear, there were many practical considerations holding back its rapid advance. Thirty-five-millimeter film was costly, and when available it was usually printed on highly inflammable nitrate stock which presented such a real danger that unless special fire-proof booths were used, no insurance company would insure a building in which such films were used. Even in those days films were expensive to produce; and since there were few projectors in use, it was not commercially practical to produce educational films.

Gradually, partly under the sponsorship of the projector and film manufacturers, a substantial library of films specially designed to meet curriculum needs were produced. And American industry documented its activity in motion pictures thus providing a large reservoir of free subjects showing the American way of life.

Industry faced the same obstacles in film utilization, for the problems were almost identical. In fact, the advancement of audio-visual techniques as applied to academic problems will always closely parallel their use by industry, for practically all business films are factual and informative in their concept. The industrial motion picture is used to impart information or to establish attitudes—entertainment, when present, is just the sugar-coating. The well-advised business executive will, therefore, always follow closely the use of films in schools, for new techniques and applications of the film medium for purely educational purposes will often provide the framework for intelligent utilization in job training, industrial relations, and the many divisions of selling. Furthermore, the school field is the largest single outlet for sponsored films.

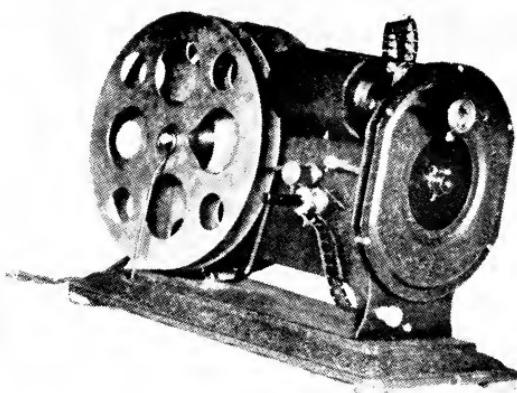
The marketing of 16-mm film in 1923 and the decision to make it the nontheatrical standard by producing it only on noninflammable stock really broke the shackles that had been holding back the full utilization of films in education and industry. A vast new home-motion-picture industry was also established. Prints could be produced for one-third the price of the theatrical size; the fire hazard was eliminated; and projectors could be easily carried from location to location. The modern era of visual communication had begun.

During this same period a new suitcase-model 35-mm projector was placed on the market. Although very similar to the DeVry model of 1913, it incorporated a heat-ray filter developed to permit the projection of a single motion-picture frame for a long period, thus permitting careful analysis and study. The step from this to a projector that projected only still pictures from motion-picture film, thereby avoiding the complicated mechanism required for motion pictures, was a logical development. Thus the slide-film, in which a single frame represents an entire scene, came into existence. It offered important advantages in compactness and cost over the old magic-lantern-type glass slide. The use of safety stock made such films entirely safe to use.

The advent of sound in the late twenties presented new complications in the utilization of informative and sales motion pictures. To many it was like starting all over again, for new projectors and films were required. However, progress in the use of motion pictures was maintained. For example, films of the United States Steel Corporation were shown to 450,000 people in 1928 and to 1,339,316 in 1933; the use of films in the public schools of Chicago grew from 647 films in 1929-1930 to 60,000 in 1935-1936. The introduction of Kodachrome in 1935 and the perfection of a duplicating process in 1938 added greatly to the artistic and thought-



The first 16-mm projector was placed on the market by Victor Animatograph Corporation on Aug. 12, 1923. The U. S. Steel film "Safety Wins" produced in 1924 is typical of the better films of that era.



conveying powers of the screen without necessitating a change in projection equipment. By 1940 there were approximately 25,000 sound projectors in use for nontheatrical purposes in America.

The Second World War brought a dramatic change to the nontheatrical motion picture, for it found its rightful place as a means of communication. The Nazis, in their systematic training for world conquest, had capitalized on the educational power of the motion picture. Through careful governmental control of the theatrical motion picture they turned the public screen into a gigantic propaganda machine, while the nontheatrical screen was used to train soldiers and war-workers and indoctrinate them with the Nazi philosophy. Films were used not only with great skill but in great quantity. There were, for example, in 1940 over eight times the number of 16-mm projectors in use for educational purposes in Germany per capita than there were in the United States, and they were being used to full advantage with more than twenty times as many training films in circulation.

Evidence of Germany's successful use of films for training was undoubtedly one of the reasons for their early acceptance as an essential link in America's war program. Soon, first-hand experience with films showed that they were speeding up training to an appreciable extent. Films were multiplying the teaching skill of the best instructors by simultaneously projecting their instructional techniques at the many Army and Navy training centers. In the vital propaganda of war, films were leading the country toward unity of effort. The size of the governmental film program can be judged from a report to Congress in June, 1943, which stated that the Navy had 830 reels of film in production, the Army 1,250 reels, the Office of Education 187 reels, and the Department of Agriculture had released 39 reels during the preceding year. Navy



U. S. Navy, Springer Pictures

Production of information and training films for the United States Navy during the Second World War exceeded at one time the peak production of any two Hollywood studios. Here a Navy training film on navigation is being photographed at the Fox Movietone Studios in New York.

film production alone was costing, at one time, more than the expenditure of any two Hollywood studios during their peak periods. Each month from 30,000 to 60,000 prints of Navy subjects were being shipped to bases at home and abroad. In all, the Navy produced 1,100 motion pictures averaging two reels each and 2,200 slidefilms. More than 1,300,000 prints were made under Navy jurisdiction. These prints were, for the most part, 16-mm sound motion pictures, and approximately 10 per cent were in color.

The immense government film program drew together most of the pre-Pearl Harbor audio-visual experts. With almost unlimited funds at their disposal, they trained many fellow workers and experimented with the film medium in order to develop its effectiveness. America's entire nontheatrical production industry worked night and day in the service of the armed forces and war industries. All concerned learned much about how to make films and how to use them best.

The men who worked in the wartime audio-visual program are the pioneers in the new era of audio-visual communication which faces commerce and industry, art and science, and the many fields of education. The tradition-bound field of education will be stimulated by dramatic new films, some made for sale to schools and others offered free by industry. Pouring forth from our schools each year we shall find a new group of citizens familiar with the film medium of communication which they will expect to find holding its rightful place in the workaday world. American business and industry, always searching for the quickest and best way to do things, is finding that for many thought-conveying purposes the audio-visual medium has no peer. Thus we have in the motion picture and the slidefilm a new language for industrial communication.

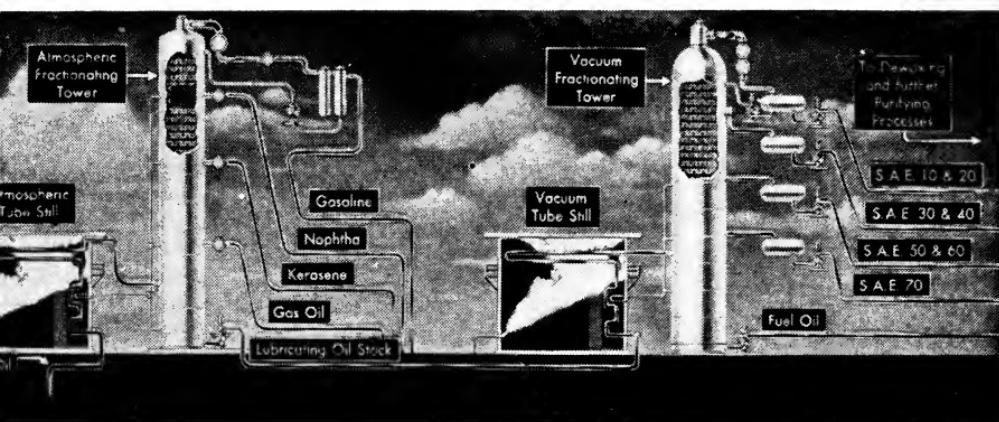
Chapter 2

A NEW LANGUAGE FOR INDUSTRIAL COMMUNICATION

THE SCREEN's potentialities for transmitting and inspiring thought are extremely varied. Its most important asset is its ability to record actual segments of life. It can transcend the barriers of space and time by quickly passing from one significant event to another. It enables us not only to profit from the experience of others but to avoid the unimportant time-consuming details that actual experience entails. A film offers many other advantages over actual experience. Many of these assets will be discussed in the chapters dealing with the various divisions of film utilization and production. However, they are so important that we will summarize them here.

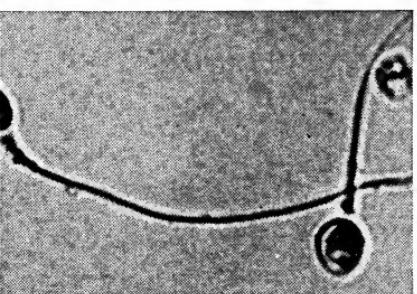
The motion picture gives everyone in its audience the advantages of individual explanation. It can move from long establishing shots to extreme close-ups, showing detail with complete clarity. When it is necessary to look through a telescope or a microscope, everyone in the film audience sees the same image simultaneously. Attention can always be focused on important objects. Selective camera position and lighting can subdue or eliminate unimportant detail. Sounds can be regulated in accordance with their importance.

Through time-lapse photography, the work of nature can be speeded up to visible dimensions. In a few minutes of screen time we can see a seed develop into a mature plant. A similar method of single-frame exposures enables us to accelerate greatly the assembling or taking apart of machines. For example, all the parts of a telephone instrument can be shown spread out on a table and then in a few seconds of screen time be made to move without any visible means of



Jam Handy.

urge to be seen but easy to comprehend through technical animation is operation of an oil refinery.

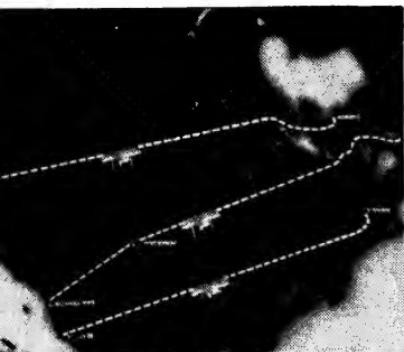


Rolab.

small to be seen with the naked eye human sperm is clearly visible when magnified 60,000 times on the screen.

VISUALIZING THE INVISIBLE

The motion picture can reveal many things impossible to see and comprehend with the naked eye. The barriers of speed, time, temperature, location, size, and complexity can all be overcome through the medium of the sound motion picture in its many forms.

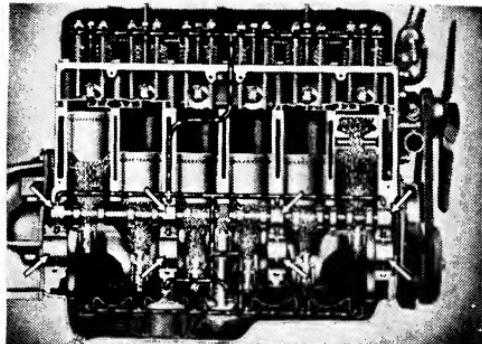


Western Electric Company.



Encyclopaedia Britannica Films.

Impossible to Be Seen—We cannot actually see large sections of the earth and the commerce that moves upon it. The inner functions of the human body are difficult if not impossible to observe and analyze for teaching purposes. Through map and medical animation a large film audience can be shown such things clearly.



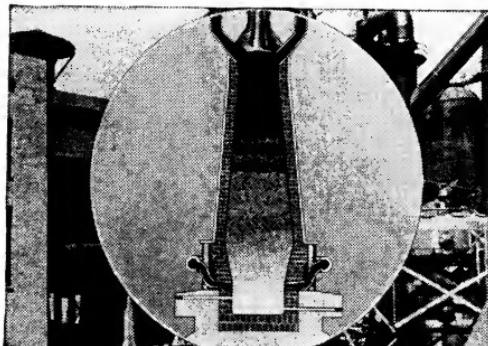
Jam Handy.

Too fast to be seen are complex engine movements and other mechanical actions which motion pictures make readily understandable.



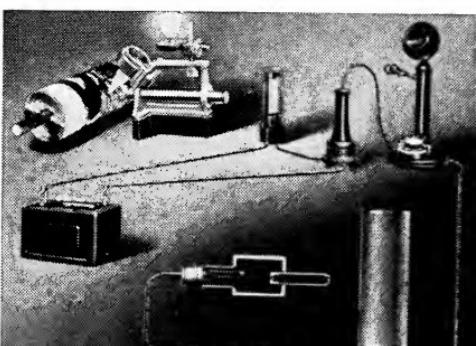
Jam Handy

Too slow to be seen is the cooling and hardening of metal which the motion picture camera can record for study and analysis.



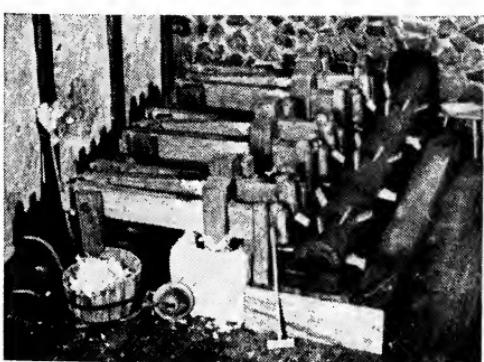
Jam Handy.

Too hot to be seen and hidden from view are industrial furnace operations which animation can show with accuracy and realism.



Jam Handy

Too complex to be seen is the detailed operation of telephoto apparatus which is clearly explained through technical animation.



Kenwood Mills.

Models can recreate things that no longer exist such as this early paper pulp



Jam Handy

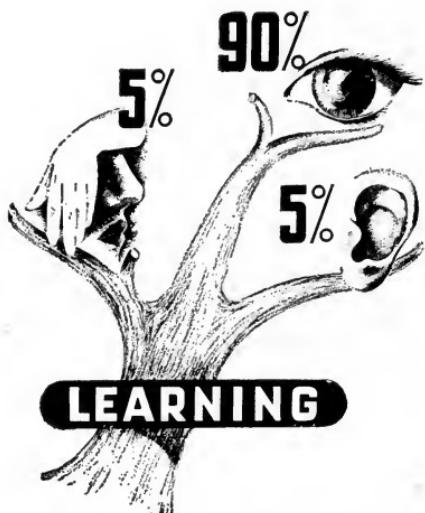
Chronokinography and slow motion can record and analyze extremely fast move-

propulsion or support to their proper place in the complete instrument.

Slow-motion photography slows down natural actions for study and analysis. The performance of people can be studied with the action reduced to about one-fifth normal speed. For scientific study of extremely fast action, the motion picture can reduce speed several hundred times.

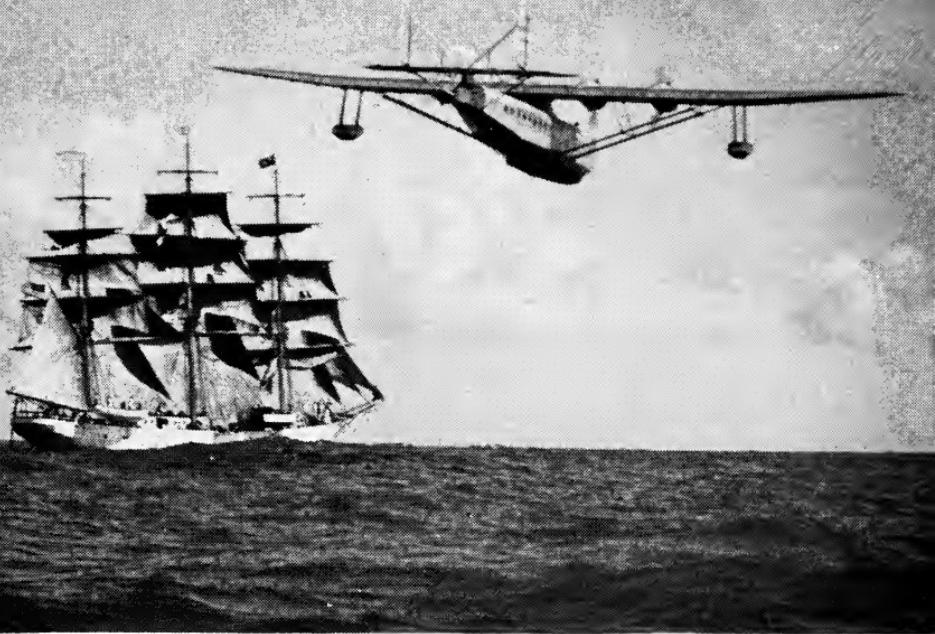
The camera can take us where it would be impractical actually to go. We can see far lands, go beneath the surface of the sea, fly high in the air, and venture to many out-of-

the-way places both at home and abroad. In the security of our projection room we can undergo experiences of a most dangerous nature. We surge forward in the front line of battle; and while death takes a costly toll of battle photographers, we remain physically safe although experiencing some of the emotional strain of combat.



Psychologists say that approximately 90 per cent of learning comes through the eyes, 5 per cent through the ears, and 5 per cent from taste, smell, and feeling.

Animated drawings simplify and explain the abstract. Animation enables us to put on the screen what science knows but the human eye cannot see. We can, for example, trace the course of electrons through a circuit and the flow of liquids and gases through an engine. We can look into the human body and analyze its functions. Diagrams can be logically developed on the screen. The ebb and flow of man's movements in peace and in war can be



Henry Clay Gi

One of the greatest assets of the motion picture is its ability to capture a moment in time.

traced on maps of the world. Through a combination of animation and straight photography we can look beneath the surface of material things to comprehend the world in which we live.

Special optical effects serve as smooth transitions between thoughts. By double printing, montages are produced which can serve to summarize action, denote a lapse of time, or create an over-all impression. Arrows or other attention-getting symbols can be superimposed upon pictures to center the eye on a particular section of the screen and can then be moved around to lead the eye to significant details.

Top-notch talent can be utilized. No business group or school class could regularly afford instruction that cost \$1,000 a minute, yet the motion picture presents the advantages of such expert talent and careful preparation at a nominal fee.

Interpretive lighting, combined with special music and sound effects, can heighten the effects of dramatic action to create profound emotional reactions.

There are, in fact, so many effects which can be created on the screen that it takes a producer with considerable experience and good judgment to know when and how to apply them. Too often the inexperienced becomes a slave of the medium instead of its master, using trick effects as an end in themselves instead of utilizing them adeptly to produce a smooth-flowing convincing story.

The U. S. Department of Agriculture, in explaining why they have used films consistently for four decades, summarized the advantages of the motion picture as follows:

A most difficult undertaking is to recreate, in the mind of another, the idea that seems so clear and complete in your own mind. The spoken word is impermanent and inexact. The printed word is more permanent, but inexact. The camera is clear, detailed but static. With the motion picture camera, the audience can be shown motion, the whole and the part, the before, the now, the later-on—all in a moment on the screen, in their most enlightening juxtaposition. Add the opportunity to reproduce speech, and then combine with it the recreation of mood through music, lighting, and sound effects, and we have potentially the most useful medium of education yet created.

Once a message is recorded on film, prints in any quantity can be quickly produced to reach all who are interested. Through judicious use of all its assets, the motion picture becomes a most potent influence in the guiding of thought. It can not only rationalize, but it can emotionalize. Thus it becomes a tool not only of the educator but of the propagandist and of the modern salesman, who is both.

USES OF MOTION PICTURES

Motion pictures have a wide variety of industrial applications; and as our business economy changes, the uses to

which films can be put seem constantly to broaden. The business executive who finds it necessary to recreate in the mind of others important concepts that he has established within his own mind will find the motion picture extremely useful. In performing such work, the film has been used in a multitude of ways, the more common of which are

TRAINING

Salesmen	Office help	In health
Dealers	Mechanics	In recreation
Jobbers	Delivery men	In safety
Clerks	Inspectors	In first aid
Servicemen	Draftsmen	In conservation
Production workers	Supervisors	In public relations

SELLING

Products	Facilities
Services	Property

OTHER USES

- To indoctrinate new employees
- To dramatize company history and activity
- To entertain employees during rest periods
- To clarify annual reports
- To introduce new products
- To explain new models
- To justify price raises
- To secure additional capital
- To present evidence in law suits
- To justify activity with government agencies
- To improve labor relations
- To maintain market during nonproductive periods
- To humanize executives with employees
- To decrease labor turnover
- To increase production incentive
- To establish trade names
- To advertise products in regular theaters

Special productions tailor-made for the job are usually used for such work. However, prints of many films are

available for loan, rental, or outright purchase to perform many of the aforementioned functions. Such stock films are widely used in the various training fields.

FORMS OF FILMS

Prints for practically all industrial motion pictures are made on 16-mm safety stock. The original shooting is largely done in 35-mm size, and 35-mm preview prints are often made. Their use in the field is largely limited by the unavailability of 35-mm projection equipment. Furthermore, in many localities 35-mm projectors require special city licenses and the construction of fireproof projection booths. Sound projectors in the 16-mm size are less expensive, easily portable, and safe to operate. The smaller size prints are readily made on noninflammable stock by optical reduction printers. They cost only about one-third as much as the 35-mm size.

Films are usually made at least one reel in length (400 ft 16 mm, 1,000 ft 35 mm), requiring an approximate running time of 11 minutes. Many films are made to run for 20 minutes but they are seldom made to run for more than 45 minutes. A 45-minute (1,600 ft.) showing is the longest that the average 16-mm projector will give without rethreading.

It is not often possible to obtain Technicolor for commercial use owing to the limited production facilities of the Technicolor Corporation. When available, Technicolor productions are made on 35-mm stock and reduced by Technicolor to 16-mm size. Practically all industrial color films are made by the Kodachrome or AnSCO processes, which give a direct positive full-color 16-mm print. From such prints duplicates, with sound added, are easily produced in quantity.

The majority of industrial motion pictures are taken in silent form. Sound is added in the studio, and the release

print combines both picture and sound track. Today practically all motion pictures are sound films, and some are recorded with direct dialogue. The old theatrical silent film and the present-day amateur film run at approximately 16 frames per second, and constant speed is not important. The sound film travels at 24 frames per second; and unless constant speed is maintained, the sound will lose greatly in quality. In the 35-mm size the silent picture occupies the full space between the sprocket holes. The sound-film picture occupies only part of this space, as room is allowed on one side for the sound track. The 16-mm sound-film-picture image occupies the same space on the film as in a silent print. The sprocket holes are omitted on one side of the film and are replaced by the sound track.

TYPES OF FILMS

The film medium is so versatile a means of expression that many types, combinations of types, and types within types have come into use. Therefore, in attempting to present the basic types, trouble is immediately encountered, for there is no possible way to classify these types simply, orderly, and logically. The industry does, however, consider pictures under certain general headings. These headings and a brief discussion of what they mean follow.

Hollywood Type—A picture in which direct dialogue, expensive sets, professional talent, and specially recorded music are combined with dramatic action to give considerable sugar-coating to a film with a message. Such productions often tell the history of a large organization and are the most



Alcoa.

expensive type production. The more costly of these productions are actually produced in Hollywood studios with budgets as high as \$100,000.

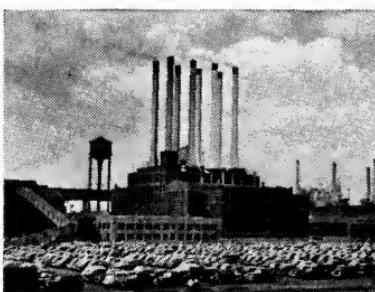


Weyerhaeuser Lumber Co.

the picture. Several narrators are often used in the same film. Most short subjects seen in the regular motion-picture theatres are of this type.



Willard Pictures.



Ford Motor Company.

Narration Type—The majority of all nontheatrical films are of the narration or voice-over-picture type. After the picture has been taken and edited, the narration is made by reading the script with underlying music and sound effects in synchronization with

Direct-dialogue Type—A film in which people speak. Similar to the Hollywood type but simpler in construction with few people and few locations. A personalized talk by an executive is often used.

Newsreel Type—A special narration-type film that, in its treatment of voice and picture, is similar to the weekly theatrical newsreel. Many actual shots from the stock libraries of the newsreel companies are used, and the narration is "punchy." Printed

captions and other techniques of the newsreels are used. The men who actually narrate the newsreels are sometimes employed to give the film a further newsreel flavor. These films are often used in a reportorial type of production, tying the work of industry in with national happenings.

Cartoon Type—Animated figures, often in full color, go through their paces for the sake of industry in the cartoon-type film. This permits highly imaginative treatment and is valuable in putting over abstract ideas or in showing things that are impossible to photograph. Walter Lanz uses a cartoon character called Reddy Kilowatt to focus attention on the value of electricity to consumers. Through the personification of Elsie, the Cow, Borden Dairy told the story of milk in "From Moo to You".



Dow Chemical Co.

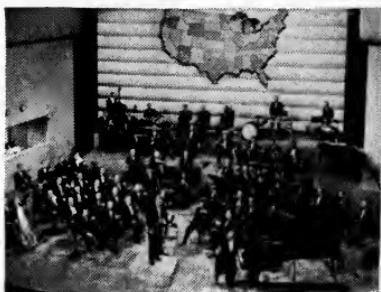
Model and Puppet Type—Similar in many respects to the cartoon type, but less frequently used. Scale models of oil refineries and other types of industrial operations are often used to give a better view of operations than can be obtained by photographing the real thing. Such models permit the gradual building up of complex operations on the screen, and cutaway models can explain invisible operations. Puppets or marionettes are used as a novel presentation and have the advantage of being impersonal.



Bklyn. Tuberculosis Assn.

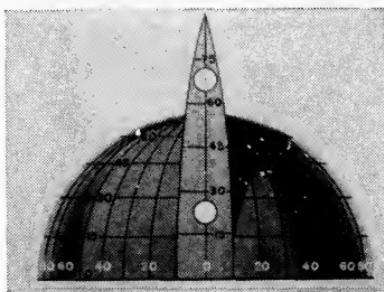


Ency. Brit. Films.



N. W. Ayer.

fitable in the future. A close approach to this technique is the Bell System production "Telephone Hour," which is a film version of the NBC radio show of the same name, presenting a symphonic orchestra.



Springer Pictures.

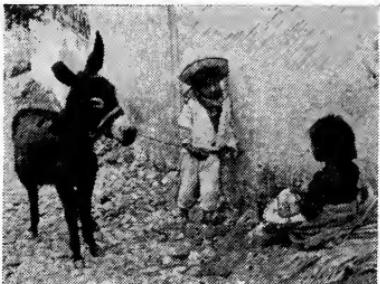
of work is largely used to explain mechanical or scientific processes and principles.

Educational Films—Although most nontheatrical films are educational in their content, the term "educational" is usually applied to films that are specially prepared for use in schools.

Musical Type—Musicals have seldom been used by industry, but there is no reason why this approach should not be used more often. A straight musical program with a short commercial similar to the technique used by radio stations may prove commercially pro-

Technical-animation Type—Films in which mechanical, diagrammatic, or other non-cartoon-type art work is used as the basis for photography are known as the technical animation type. Various elements of the pictures move and develop on the screen. This type

Travelogue Type—Films of interesting or unusual places are called travelogues. A natural type of film for use by transportation companies to promote travel to the areas that they serve.



Grace Line.

Training Films—Any film that shows how to do something is known as a training film. Usually such films outline a specific procedure to be followed in the performance of a definite job.



Alcoa.

Minute Movies—Short commercials, usually with an entertainment slant, used between feature programs in regular entertainment theaters. Also called movie playlets, talkie trailers, and movie screen advertising.



Alexander Film Co.

Documentary Films—A broad term applied to many non-theatrical productions, but especially a film purporting to show life exactly as it is. This approach, which is more of a social-study type, is not generally used by industry.



Navajo Service.

Combinations of Film Types—One of the most usual combinations of the foregoing film types is to have parts of a film in direct dialogue, with a narrator filling in between the dialogue sequences. Technical and cartoon animated sequences are also quite generally used in all types of pictures. Entire films have been made in both slow motion and accelerated motion, but these processes are generally used for short sequences within a film.

SLIDEFILMS

Where static pictures and diagrams can tell a story adequately, slidefilms (sometimes called strip films) can often be used more advantageously than motion pictures. In the slidefilm, individual 35-mm full-aperture motion-picture frames are projected one at a time and are held long enough for detailed study. Special compact projectors are used for slidefilms. The film is shifted from one frame to another manually. Through the medium of a phonograph record, sound can be reproduced at the same time that the film is shown. A muffled bell or buzzer sounded at the proper time in the recording is the signal for the turn to a new picture.

The important uses of slidefilms are

- For production training
- For sales training
- For service training
- For safety, health, and first-aid training
- Picturing products and manufacturing facilities
- Presenting advertising programs
- Making sales presentations
- Illustrating lectures
- Presenting facts to conventions
- For educational purposes in schools
- To show merchandise too bulky to carry
- To show new models not yet in production
- To supplement motion pictures
- For visual tests

Viewing a slidefilm does not offer the close approach to a living experience that the motion picture gives. It nevertheless has many advantages as a means of communication. Foremost among these are practical cost considerations. The average silent slidefilm can be produced for about one-fifth of the cost of a motion picture on the same subject. Equipment can be obtained at a similar saving and is much more portable. Slidefilms can be carried in a vest pocket, and the cost of duplicate prints is only about 10 per cent of that for a motion picture of similar running time.

Although a slidefilm can substitute in a limited way for a motion picture when budget restrictions make such action necessary, it should not be thought that they serve parallel purposes when correctly used. The chief function of the slidefilm is to explain by presenting pictures to groups for detailed study where motion is not necessary for the learning process. When motion is an important consideration or when it is desirable to emotionalize, the motion picture should be used.

Since a silent slidefilm picture can be held on the screen as long as desired, an instructor can adjust his comments to the intellectual level of his group. This procedure is especially important when dealing with various nationality groups where the pictorial material must tell almost the entire story.

When there is any doubt about the knowledge or the ability of a speaker who is to present a slidefilm, it is much better to use a recorded talk synchronized with the film. The uses of such sound slidefilms more closely parallel those of the sound motion picture; for through the use of recorded music and dramatized narration, we can emotionalize. Where action is not important to the purpose of a motion picture, a sound slidefilm can perform a similar job in communication and do it just as well at a cheaper price. One should be used under such circumstances if projection equipment is available.

Recently one top executive when asked whether he preferred motion pictures or slidefilms in his company's film program, said:*

There is no question of preference or any real comparison between these two media. Each has its separate and distinct place in film activities. We wouldn't attempt to use a sound slidefilm where a motion picture is clearly indicated by the nature of the subject matter; neither would we use a motion picture when a sound slidefilm can do the job more effectively.

For example, we use sound slidefilms in a series of integrated sales training programs, complete with accompanying manuals, posters, charts and other visualizations. Each subject in this series outlines a series of steps, picturizes the situations involved and is accompanied by a recorded discussion of the right and wrong approach involved, directly applied to our specific products.

Neither motion or emotion are essential. We deliver a logical and memorable audio-visual lesson which is amplified by group discussion after the showing, firmly impressed by a review of the picture and further secured by the personal copy of the illustrated manual containing slidefilm illustrations and the text of the recorded message.

When assembling pictures and drawings for lectures or sales meetings and where frequent changes may possibly be made in the order or content of the presentation, it is advisable to have the pictures reproduced on individual slides in either the 2- by 2- or 3½- by 4-in. size rather than on a continuous film strip. When Kodachrome slides are to be used, the smaller size permits an important saving in film cost. The 2- by 2-in. size permits the use of inexpensive compact projection equipment which is generally available and can be conveniently carried by an executive for special showings. Some such projectors also take strip-type film. For very large groups, especially when it is important to present a great amount of detail on the screen, the larger size slides should be used. Close supervision is required in presenting individual slides, since it is easy to get them out of order and wrong side

* From *Business Screen Magazine*

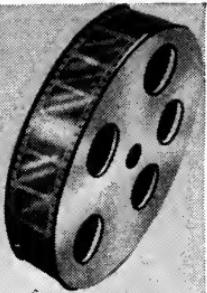
up. The assembly of a lecture using individual slides will probably be less expensive than making a strip-type film. However, if duplicate prints are to be made, the film strips will prove much cheaper.

A large-size image can also be obtained on the strip-type film by having the individual pictures printed lengthwise, occupying two standard motion-picture frames similar in size and placement to a Leica negative. This results in a little clearer screen image and is useful for subjects containing a great amount of detail. Since not all projectors will accommodate this form of slidefilm, which requires a different film-moving mechanism, it is well to investigate the availability of suitable projection equipment before undertaking the double-frame type of production.

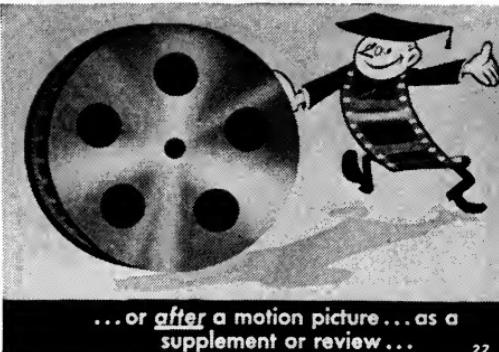
The use of color in making slidefilms offers considerable advantages. So little film is used that the print cost can still remain within reason. Prints can be made in Kodachrome, Technicolor, Ansco Color, or Americolor or by one of the other processes. Where color is an important sales asset to a product, the advantages of showing it in its natural tones are obvious.

The recent development of stereoscopic slidefilms opens an interesting new field. Through this process objects may be seen in third-dimensional perspective in either black and white or color. This is accomplished by projecting two images on the screen, polarized in different directions. Everyone in the audience wears special polarized glasses which permit only one image to be seen by each eye. Motion pictures have also been made by the same process. Although stereoscopic pictures are largely a novelty and are expensive to produce, they offer interesting possibilities for special meetings, exhibitions, and unusual sales programs.

Slidefilms and motion pictures can often be used as a unit



They may show me before a motion picture
as an introduction to that picture ... 21



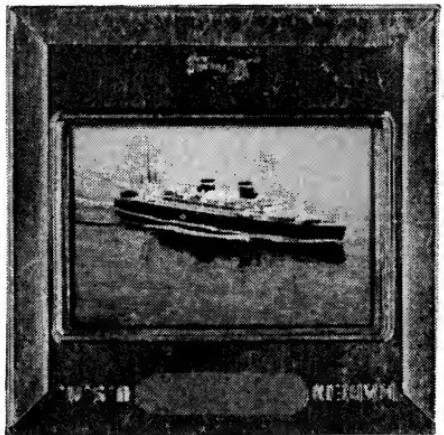
... or after a motion picture ... as a
supplement or review ... 22

Young America Film

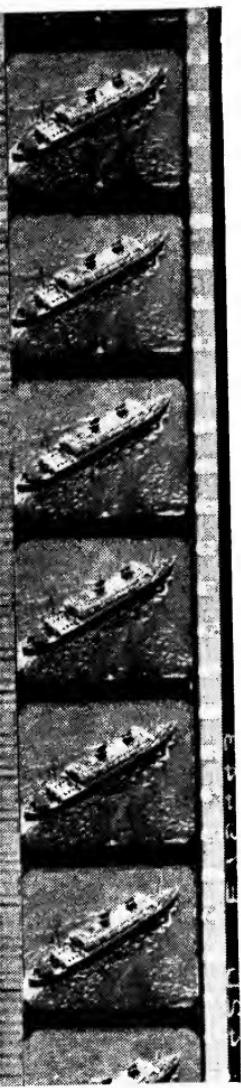
Slidefilms have great value when used in correlation with motion pictures.

to complement each other. The motion picture can best create interest, persuade, and motivate, whereas the slidefilm finds its greatest use in presenting factual material. If it were possible to draw a sharp line between the uses of these two visual media it would be motion pictures for attitudes, slidefilms for facts.

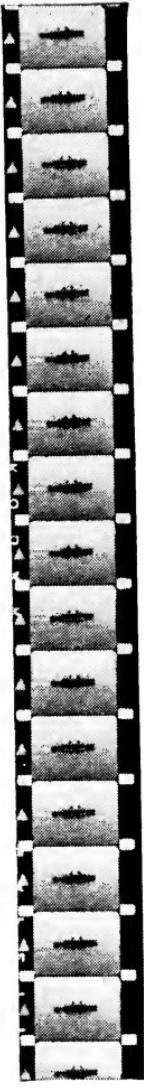
Before we proceed further, let us make absolutely certain that the physical differences between the various forms of the film medium are clearly understood. The following illustrations are all actual size:



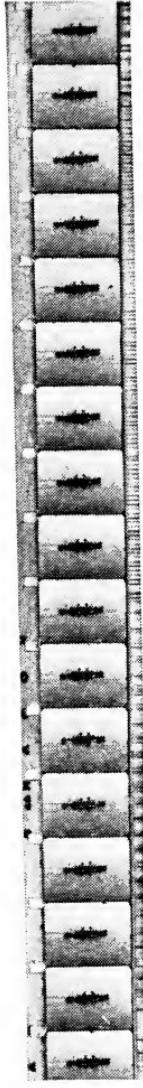
A 2- by 2-in. slide. The transparencies are usually double-frame size as illustrated, although they are sometimes made from single-frame 35-mm film. They are usually in color. Holders are made from metal, plastic, or paper.



35-mm sound motion picture.



16-mm silent motion picture.



16-mm sound motion picture.



Single-frame slidefilm.



Double-frame slidefilm. A single- or double-frame slidefilm is known as a *slidefilm*.

Chapter 3

HOW INDUSTRY IS USING FILMS

AN ATTEMPT to document completely the use of films by American industry would indeed be a thankless task. Although it would be possible to compile information on the thousands of films that industry has made available for public showings, there is no way of discovering the complete story of film production for interorganizational use. Many of these films represent a part of management know-how and are often regarded as trade secrets.

A recent survey made by the Association of National Advertisers reveals, however, that over 70 per cent of their members have had experience with films and others are contemplating productions. Actual figures from the survey show that of the companies reporting

31.0 per cent had used both slidefilms and movies

28.8 per cent had used movies alone

11.0 per cent had used slidefilms alone

29.2 per cent had used neither movies nor slidefilms

A representative group of 59 of the above companies who are currently using motion pictures were found to be applying them as follows:

85 per cent for product promotion

73 per cent for institutional value

57 per cent for sales training

59 per cent for school showings

35 per cent for employee education

It is therefore clear that films are not an expensive novelty but a vital link in America's system of industrial communication.

This chapter, in outlining the film programs of a repre-

sentative group of American business organizations, is designed to show a variety of uses. It may well suggest similar applications within other organizations. In industry's half century of film use there have been many times when inadequate equipment or inexperience in the production and use of films has led to failure, but gradually over the years films have proved their worth. The experimental stage is now over. Let us therefore review some of the very practical ways in which industry is using films.

THE UNITED STATES STEEL CORPORATION

Thirty some years ago at the Panama Pacific Exposition the United States Steel Corporation presented a motion-picture record of corporate activity that will doubtless never be surpassed in length. It ran for a full 75 reels. The 60 million and more people who have seen U.S. Steel films since the beginning of the corporation's program probably contains few who witnessed all 20 hours of this film.

United States Steel currently distributes over 1,000 prints of their various films through film centers located in New York, Chicago, San Francisco, Birmingham, Pittsburgh, and Cleveland. The function of these distribution centers is to cooperate with the many subsidiaries of U.S. Steel in all matters pertaining to films.

Many of U.S. Steel's subsidiary companies produce motion pictures and slidefilms for training purposes. The Carnegie-Illinois Steel Corporation have shown their 22 sound-slide training films to approximately 480,000 employees in the last 4 years. The films cover such widely diversified subjects as supervision, accounting, safety, and job training.

Through a standardized film-checking and -handling system pertinent facts are regularly assembled for the benefit of public-relations, production, and sales departments of subsid-

iary companies. The following record of showings of U.S. Steel films over a 19-year period gives a clear picture of the corporation's film activity. The end of wartime distribution and the difficult reconversion period account for the lowered 1945-1946 figures.

UNITED STATES STEEL CORPORATION MOTION-PICTURE DISTRIBUTION

Year	<i>Silent Nontheatrical</i>		<i>Sound</i>				<i>Total</i>	
			<i>Theatrical</i>		<i>Nontheatrical</i>			
	<i>S*</i>	<i>A*</i>	<i>S</i>	<i>A</i>	<i>S</i>	<i>A</i>	<i>S</i>	<i>A</i>
1928	2,073	450,000	.....	.....	.....	.....	2,073	450,000
1929	3,931	681,297	.....	.....	.....	.....	3,931	681,297
1930	7,383	993,650	.....	.....	.....	.....	7,383	993,650
1931	10,331	1,190,282	.....	.....	.....	.....	10,331	1,190,282
1932	10,900	1,342,253	.....	.....	.....	.....	10,900	1,342,253
1933	12,341	1,339,316	.....	.....	.....	.....	12,341	1,339,316
1934	14,310	1,547,713	.....	.....	.....	.....	14,310	1,547,713
1935	14,169	1,398,143	.....	.....	.....	.....	14,169	1,398,143
1936	17,418	1,563,381	.....	.....	.....	.....	17,418	1,563,381
1937	22,614	2,319,072	.....	.....	.....	.....	22,614	2,319,072
1938	22,750	2,429,040	9,643	3,195,262	817	370,153	33,210	5,994,455
1939	17,147	1,847,841	2,475	676,108	1,132	369,014	20,754	2,892,963
1940	23,628	2,053,662	.....	.....	8,188	889,280	31,816	2,942,942
1941	25,035	2,392,368	.....	.....	4,842	496,969	29,877	2,889,337
1942	18,443	1,574,024	12,062	3,687,635	5,676	625,359	36,181	5,887,018
1943	14,337	943,868	18,513	4,964,135	6,960	1,207,290	39,810	7,115,293
1944	8,376	512,182	9,100	2,648,232	10,186	1,232,073	27,662	4,392,487
1945	6,669	393,317	.....	.....	9,746	1,132,187	16,415	1,525,504
1946†	7,725	410,423	.....	.....	7,259	809,341	14,984	1,219,764

* *S*—showings; *A*—attendance.

† Estimated on basis of 9 months' record.

United States Steel films available for general release are described in a 12-page catalogue which also gives full information about the loan of films and suggests proper projection procedure. One paragraph from the catalogue can profitably be applied to all film showings. It states that

A short explanation of the purpose of the showing, combined with a brief description of the industry, company, product or subject should always precede a motion picture showing. The degree of showmanship exercised in any presentation will be directly reflected in the results which may be expected from the showing.

Individual films are also described by special leaflets which are mailed to groups that may be interested in showing the film.

ALUMINUM COMPANY OF AMERICA

A large part of Alcoa's film distribution to both theatrical and nontheatrical audiences is handled through a commercial film distributor, but the company also encourages distribution of films from its motion picture department in Pittsburgh by circulating a 22-page catalogue listing 15 films that are available for free loan in both 35- and 16-mm size. Borrowers of films are required to pay shipping charges both ways. The U.S. Bureau of Mines circulates some of Alcoa's technical films free of charge and makes quarterly reports on showings.

Since the inception of Alcoa's film program 182,291 showings have been made to an audience of 26,332,142 people. Of this total audience 11,107,091 saw "Unfinished Rainbows," the technicolor history of aluminum, or its shorter version "More Worlds to Conquer" as part of the program in 8,500 neighborhood motion-picture theaters, an average audience of 1,307 per theater. At nontheatrical showings, Alcoa's film audiences average 105 for adult showings, 250 in school auditoriums, and 120 students for each individual shipment of a



Alan Ladd stars in the Technicolor motion picture, "Unfinished Rainbows," which tells the story of aluminum for Alcoa.

film for classroom use. Alcoa has found that when schools borrow a film for classroom use it is usually shown to several classes before being returned.

Motion pictures and slidefilms are used at practically all of Alcoa's branches for training purposes. Several of the company's larger plants use theatrical motion pictures for entertainment purposes during rest periods.

Like the great majority of industrial film users Alcoa relies on established nontheatrical motion-picture producers to

make its films, whether they be of the simple training variety or the elaborate Hollywood type such as their Technicolor film, "Unfinished Rainbows," which starred Alan Ladd. However, all stages of the script writing and the actual making of a film are under the supervision of a special committee appointed for each production. The head of the motion picture department serves as chairman of this committee and reserves the right to make final decisions on all matters of motion-picture technique. The committee as a whole is entirely responsible for all details regarding company policy and procedure and especially for technical details of manufacture and engineering. A film distributor often sits in on these meetings to advise on distribution and the audience reaction that may be expected.

SYNDICATE STORE MERCHANDISER

The editor of the *Syndicate Store Merchandiser* magazine was so impressed with the knowledge that his son acquired through viewing slidefilms in school that he decided to apply this visual teaching method to his own business. Accordingly the magazine undertook the production and distribution of a series of sound slidefilms designed to speed the training of employees in the five- and ten-cent stores that the magazine serves.

A complete training kit is now marketed, including sound slidefilm projector, recordings, slidefilms, and supplementary materials such as posters, handbooks, and quiz sheets. These are all packed in a heavy-duty case which is ideal for storage and for shipment from store to store. The production program calls for four new films a year. The films have a running time of 10 minutes, with the recordings on one side of a 12-in. record to be played at $33\frac{1}{3}$ rpm.



Stickers prove an effective reminder of the lesson in a slidefilm.

The productions are highly dramatized, with cartoon figures often superimposed over photographs to provide an interesting way of telling a story. A dollar bill is "animated" to show correct cash-register procedure. Knives and forks teach the fundamentals of proper food handling and fountain service. One film, "The Case Against Shrinkage," uses a cartoon figure called Shrinkage to represent the many ways in which merchandise and cash may be lost. Like all good detective stories the film first describes the criminal and his work and then shows how he can be caught. Salespeople learn correct treatment of easily damaged goods, care of counters and understocks, and the importance of checking prices on each sale. Accurate weighing, and measuring and the use of the cash register are also stressed. In order constantly to remind salespeople of the facts brought out in the film "antishrinkage" stickers are provided to stick on cash registers, under

counters, in washrooms, and in other strategic places around a store.

A special photo-quiz technique has been devised to follow each film to stimulate after-showing discussion. These quiz frames are on the same slidefilm as the part designed to be run with the recording. They are, however, run silently. A picture showing several wrong ways of doing something is flashed on the screen. The audience is asked to decide what is wrong. The next frame gives the answers by superimposed lettering over the photograph. All the important points that have been brought out in the body of the film are reviewed through a series of such question-and-answer frames.

G. LYNN SUMNER COMPANY

Mr. G. Lynn Sumner, president of the advertising agency that bears his name, is likely to smile when he hears motion pictures referred to as a "new" medium for business promotion. Twenty-five years ago he supervised the production of a sponsored film that made attendance records which still stand. This film, "Heads Win," produced for the International Correspondence Schools, played to tremendous audiences all over America. On June 5, 1920, it was seen by 7,000 people at one showing in the Milwaukee auditorium, which may well be the largest single audience ever assembled to see a sponsored film. From this showing 42 correspondence courses were immediately sold, which more than paid for the actual expense of putting on the show. Over 6,000 prospects took literature describing the International Correspondence School home with them, resulting in new business for several years.

The Sumner agency now supervises the production of films for its clients, exercising careful control not only over the

script but over all stages of production. Their film program for Kenwood Mills, manufacturer of blankets and papermakers' felts, demonstrates the comprehensive, carefully planned use of films by a moderate-size business. When the agency took over the account in 1933, they produced two films, one entitled "Bedtime Story" for training retail sales-

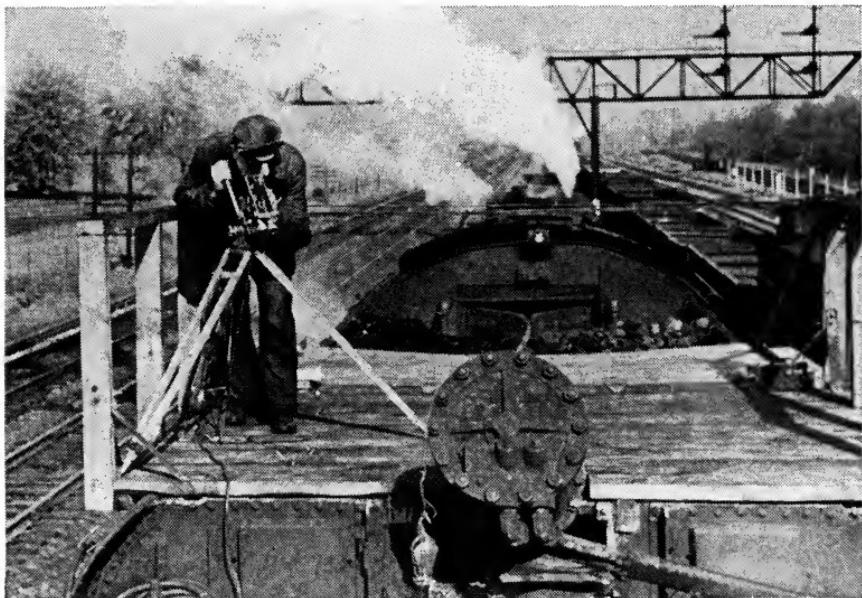


An audience of 7,000 people view a 1920 business film.

people and the other "Behind the Kenwood Label" for showing to consumers at the point of sale and to the general public. Several years later a film, "Two Related Industries," showed the manufacture of papermakers' felts. Since all paper is formed on felts, this film proved of great interest to the many paper manufacturers that Kenwood serves. In 1940 a silent slidefilm was made as an aid to salesmen in describing to buyers and clerks in stores how blankets are made. A booklet reproducing each frame from the film, with an interesting printed story giving the details of the blanket-manufacturing process, proved as valuable as the film itself. A current Kodachrome motion picture "Here Comes the Bride" tells in full

dialogue an interesting story designed to show retail sales-people how to sell blankets.

For the felt division of the company another current film, "Paper, Pacemaker of Progress," tells the complete history of papermaking. This motion picture was designed for showings to employees and executives of paper mills in order to stimulate pride in their industry's accomplishments. There is very little mention of felt or of the Kenwood Company in this film. Of course, this seemingly altruistic gift to the paper industry will no doubt result in future intrenchment of Kenwood as leading suppliers of felts to papermakers.



16-mm films were taken to study water overflow from a New York Central locomotive tender.

NEW YORK CENTRAL RAILROAD

Early in the planning stage of the New York Central Railroad's present motion-picture program, a survey was made of

educational-film libraries throughout the country to determine if they were interested in distributing prints without charge to the railroad if the prints were deposited with them. A summary of the replies received from the questionnaire follows:

Questionnaires mailed.....	250
Questionnaires returned with data.....	227
Interested in obtaining motion pictures.....	225
Libraries serving schools only.....	55
Libraries serving schools, clubs, churches, etc.....	177
Libraries supplying films to borrower free.....	132
Libraries making 50-cent service charge.....	95
Libraries operating all year, including vacation.....	160
Interested in obtaining silent slidefilms.....	114
Interested in obtaining sound slidefilms.....	85

Fortified with this assurance of free distribution of their productions, provided they met with high educational and technical standards, the motion picture department of the New York Central has produced five films in 5 years.

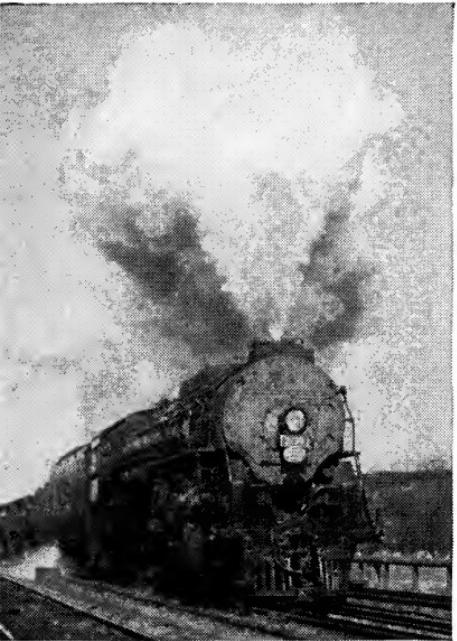
Some idea of the interest in the company's films is evidenced by the following extract from a letter from the Board of Education of the city of Los Angeles commenting on the Kodachrome production "New York Calling":

The greatest compliment your film could have is the number of advance reservations now on hand months before the beginning of the school year. When the main group of requests come in at the start of the school year, we will have to inform them that there are so many on the reservation list that they may have to wait as long as three years.

The Syracuse University film library wrote:

New York Calling—This film is booked solidly at the present time for the rest of the school year, right through the last of May, and we are still getting calls from all over Pennsylvania, New York and the New England states. We are wondering if by any chance we could get an additional copy at this time.

The entire distribution of New York Central films is handled by these noncommercial libraries in which the films are



Iron horses of today and yesterday are shown in New York Central's film, "New York Calling."

deposited. Distribution is encouraged by a publicity campaign released by the railroad. Inquiries requesting a film for showing are answered by advising from which libraries the film may be obtained.

New York Central plans, writes, and photographs its own productions. Occasionally the motion picture department is called on to assist the engineering departments in studying operating conditions. Slow-motion photographs of a problem enable a large group of engineers to study it in detail. The reason why some old switching locomotives climbed over the rails was analyzed in this way. Not only did films show the dangerous overflow resulting when some locomotives scooped up water at high speed, but the terrific impact of the pictures dramatized the need for immediate alteration in equipment.

The railroad uses a number of specially equipped training cars and a visual activity car which test employees' color

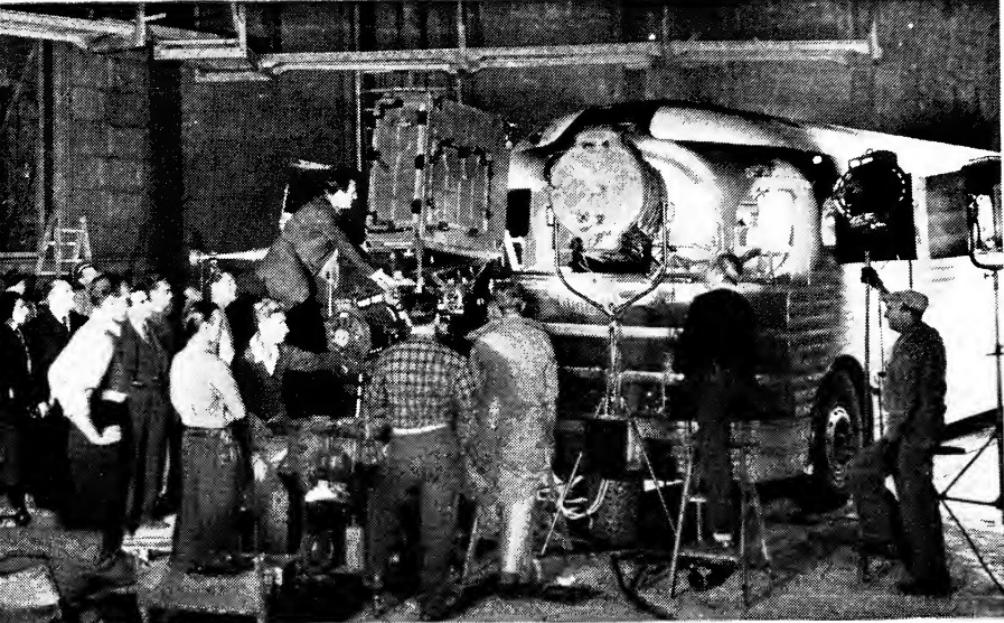
perception. The use of visual aids in these cars is just getting under way. For the initial program 2- by 2-in. color slides showing various signaling devices are to be used for instruction and testing.

NATIONAL DAIRY COUNCIL

The National Dairy Council has served the dairy industry for 28 years as an educational source. One of the ways in which they present their research on nutrition is through the film medium. The council acts in a twofold capacity: that of the producer and that of the previewer and recommender to the various affiliated units and to other users of educational material who request such service. Their own films are distributed through these affiliated units and other channels of national distribution. Their four most recent films are "America Learns to Fly," "America's Favorite," "A Guide to Good Eating," and "More Life in Living." They have other motion pictures and slidefilms in the planning stage. They preview all films dealing with nutrition, health, physical education, and general dietary well-being that are called to their attention.

THE GREYHOUND CORPORATION

The Greyhound Bus Lines, through their agency Beaumont and Hohman, have produced two films that have made outstanding records. The Technicolor film "This Amazing America," produced in 1941 in Hollywood, is a Greyhound bus tour of the United States complete with love interest, plot, and comedy interludes. The film takes the audience to see many of America's natural wonders and historical spots. It has been seen by over 18 million people, which is probably the largest audience ever reached by a commercial film. Under government sponsorship the film has been translated



A camera setup and the resulting screen image from the Greyhound Technicolor film, "This Amazing America."



Beaumont and Hohman.

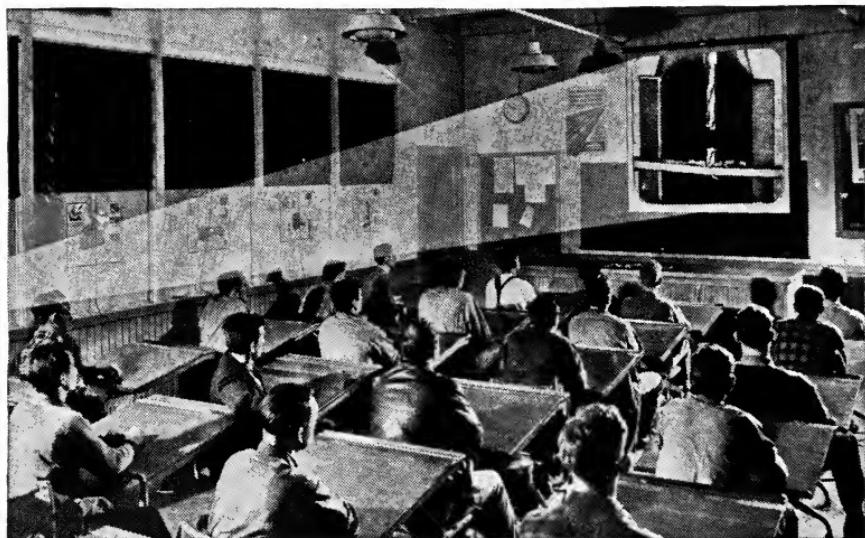
into seven different languages: Spanish, Portuguese, Russian, French, Chinese, Japanese, and Italian. Distribution of the film is handled by commercial distributing companies and by the Greyhound traveling passenger agents. For nontheatrical use in 16-mm form the full 35-minute film is shown. For theatrical showing a 7-minute version entitled "Wayside Wonders" is generally used. A new film, "The Shortest Way Home," tells in entertaining form the advantages of bus travel. Even larger audiences are predicted for this film.

CATERPILLAR TRACTOR COMPANY

Perhaps the best evidence of the high value that the Caterpillar Tractor Company places on motion pictures is the fact that they have used the film medium constantly since their incorporation in 1925 and have regularly devoted a generous share of their advertising budget to film production. They have a staff of four photographers who spend a large portion of their time traveling in the field taking still and motion pictures of Caterpillar products at work.

Caterpillar motion pictures are principally sales-promotion films. Heavy machinery is expensive to transport and demonstrate; hence motion pictures are ideal for picturing the power and performance of a new machine to a prospect who has never seen one at work. Many early orders were written solely on the strength of motion-picture demonstrations. As late as 1938, when Caterpillar introduced its revolutionary new type of motor grader, many of their distributors reported that they sold these machines with a 100-ft 16-mm short, which was simply a motion-picture record of a demonstration of the machine building roads. As soon as color became available commercially, the company adopted it as standard for all pictures except those with very limited use and short life.

The early demand by distributors and salesmen for straight selling films was so great that the company's capacity to produce films was completely occupied with selling films. However, the everyday work of a track-type tractor is so spectacular that numerous requests for films were received from schools, service clubs, and other general-audience groups. It soon became apparent that motion pictures could be profitably used for general promotion.



A machinists' class at the Caterpillar Tractor Company.

Although the Caterpillar Tractor Company occasionally lends films direct from the factory, their distribution generally follows a pattern established many years ago. A large portion of their distributors own projectors and are supplied with prints of all current films. Distributors use these films throughout their territory showing them to various organizations and schools and to prospects and other interested individuals. When the home office receives a request for a film, the inquiry is referred to the distributor in his territory.

Because of the company's desire to acquaint their employees with the value of the products that they build, films are shown to employees and their families. At times motion pictures produced by other companies and organizations are also shown. Both slidefilms and motion pictures are used extensively for training. Although some of these are specially produced for Caterpillar Tractor Company, many others are used, such as those of the U.S. Office of Education and the Bureau of Mines. The extent of Caterpillar's film activity can be gaged by the fact that four movie projectors and 12 slide-film projectors are in use at the home office.

ATLANTIC REFINING COMPANY

The Atlantic Refining Company has made extensive use of the film medium in building good will. This petroleum company has a library of more than 125 sound films which it distributes free of charge to schools, churches, and clubs. Before the war Atlantic furnished projector, film, and projectionist, and their films reached a relatively small audience. They had 10 projectionists, naturally limiting the number of showings that could be made. However, after their projectionists were taken into the armed services, the company continued to receive so many requests for showings that they decided to loan their films to all who requested them. Through this "loan" system their films reached approximately one-half million people in 1942. During 1942 Atlantic's films were shown to more than one million people, all of whom saw the 16-second lead on each film reading "The Atlantic Refining Company Presents" accompanied by Atlantic's musical signature. No other advertising matter is carried in the films. In 1946 their audience figure exceeded 2,500,000. Atlantic circulates their film catalogues among Rotary and Kiwanis Clubs, schools, churches, and other organized club groups.

NATIONAL ASSOCIATION OF MANUFACTURERS

Since 1936 the National Association of Manufacturers has released nine motion pictures and ten sound slidefilms. All the motion pictures combine educational content in the field of economics with entertainment. They are first released theatrically for about a year before being shown in 16-mm form. Member companies and independent organizations often buy prints of NAM motion pictures for their own film



The film, "Three to Be Served," dramatizes some fundamental economic problems by showing the vacation business activity of a group of high-school students.

libraries in order that the films will always be conveniently available for employee showings. Such prints are sold at laboratory cost plus a nominal handling charge.

The NAM films discuss such topics as the machine as a

job creator, industry as a community builder, America's material progress, industrial research, American freedoms, and the problems of starting and conducting a successful business. Discussion guides which accompany the films for showings to all types of adult and educational groups are specially keyed to the needs of the group. For adult groups, guides contain a suggested address to precede the showing of the film, another to introduce a discussion period after the showing, and a series of questions to stimulate the discussion. For classroom use a teacher's guide outlines how the film may best be used and suggests activities to follow the showing.

THE J. WALTER THOMPSON COMPANY

The Thompson Advertising Agency, which is the world's largest, employs a staff of experts to advise clients on motion pictures and to write scripts, supervise production, and arrange for distribution of sponsored films for their clients. Since it is impossible to provide all of these services on the 15 per cent markup basis that governs most agency activity, films are produced for clients at a fixed price agreed on in advance of production. The motion picture department has produced films for 36 of their clients, including Elgin, Pond's, RCA, 7-Up, *The Reader's Digest*, Sharp & Dohme, and Ford. One of the most interesting projects is the "Americans at Home" series of 16-mm Kodachrome films for the Ford Motor Company. These are travelogue-type films which document life in interesting American communities. "Men of Gloucester," for example, shows the picturesque shore and harbor activity of this New England town and follows the fishing fleet 300 miles to sea to show the real work of mackerel fishermen. The only advertising plug in these travelogue films is a brief credit to the Ford Motor Company in the titles.

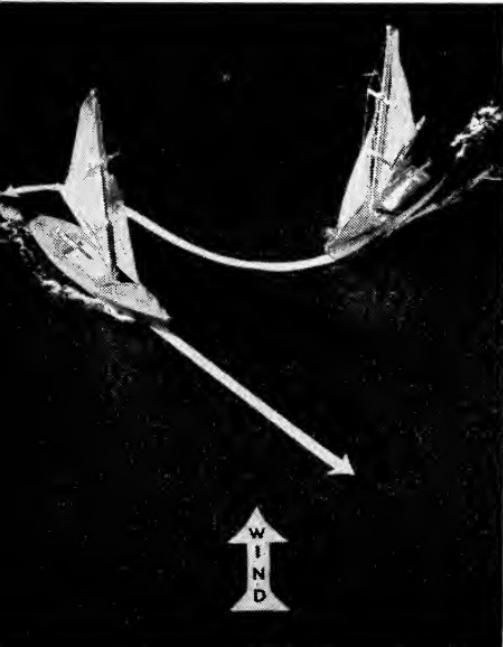


The Kodachrome film, "Men of Gloucester," presents this typical scene of fishermen setting their mackerel nets 300 miles at sea. This film is the first in the Ford Motor series of American travelogues.

AETNA LIFE AFFILIATED COMPANIES

The Aetna Life Affiliated Companies maintain a motion-picture bureau which writes and produces all company films. They operate in a specially equipped studio in the home office building at Hartford, Conn. This film-making unit is considered to be the most complete in the New England states. Since its formation shortly before the war, films have been produced at the rate of five a year.

The main effort of the bureau is directed toward the making of 16-mm, full-color, sound motion pictures on the subject of safety education. Five new films have recently been released. "Safety Ahoy," "Aim for Safety," and "Hook, Line and Safety" comprise a sports safety series; "Friend or Foe" dramatizes fire prevention; and "Partners in Production" deals with the problems of safety in industry.



The Aetna Life film, "Safety Ahoy," is designed to make life safer for



"No Time to Lose" is a 5-minute film on how to report a fire.

Sales-training films, produced in the Aetna motion-picture bureau, are used for training new representatives and indoctrinating agents in various sales techniques and promotional plans. For example, "Now You're Talking" emphasizes the advantages of using the telephone in selling insurance. "The Bank and Agent Auto Plan in Action" explains how local banks and insurance agents can serve the public in financing and insuring automobiles. This film was made by Aetna for the National Association of Insurance Agents and has been widely used by that association throughout the country. The motion-picture bureau has also produced an office training film, entitled "Record 3452," which is shown to all employees in Aetna's large central ediphone department.

Film libraries containing prints of all currently available safety educational films have been established in 38 Aetna branch offices throughout the country. Requests from community groups, fraternal organizations, industrial and business concerns, schools, and colleges for showings of films are handled through the closest film library. Over 60,000 showings of Aetna films are made each year with a total audience in excess of 8 million.

IN GENERAL

In limiting this chapter to a discussion of the film programs of a few organizations it has been necessary to omit many case histories of great significance. The General Motors Corporation has, for example, been one of the largest users of the audio-visual medium. Other automotive corporations have likewise widely used films for promotion and training. The International Harvester Company has been using films since 1911 and now keeps about 25 titles in constant circulation. The Westinghouse Electric Corporation, another important film user, claims that there is nothing unusual or different about their film program. This is significant, for it means that they, like many other large organizations, have accepted films not as a novelty but as an important part of their corporate structure. According to the head of the Westinghouse motion picture department, they try to make each film the finest in its field and hire the best producer possible to do the job. There is never any letdown in pressure to keep their films at all times before the public. Those who wish to analyze case histories of other organizations will find an interesting series in the September, 1946, report* of the Association of National Advertisers entitled "New Horizons for Business Films."

The film activities of some organizations are so large and varied that they are difficult to analyze. Often instead of a centralized film control, branch managers and department heads instigate and supervise production to fill their own specific needs. One cannot study the contemporary history of industrial film utilization without reaching the conviction that films are one of the important tools of modern business.

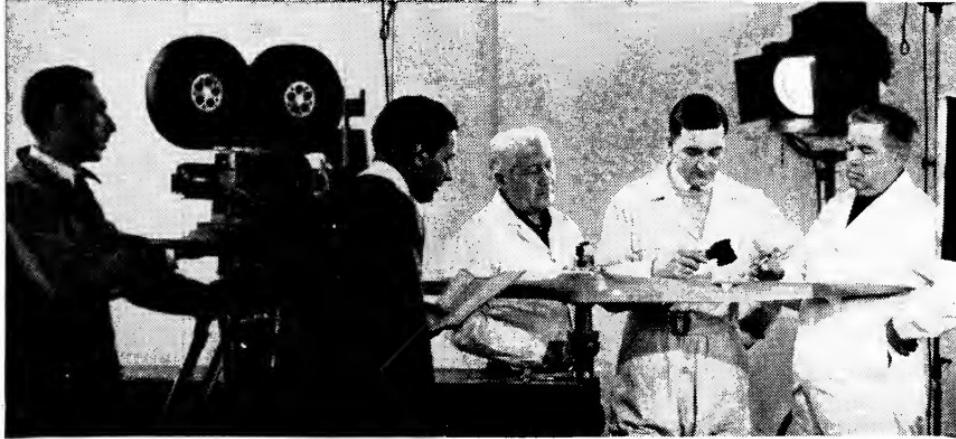
* Association of National Advertisers, Inc., 285 Madison Ave., New York 17, N. Y.

USING FILMS WITHIN AN ORGANIZATION

A CENTURY ago America underwent an industrial revolution when, through the introduction of machines, the muscular productivity of workers was multiplied many thousands of times. Today a similar mechanization is taking place in developing the mental potential of the worker through the utilization of industrial motion pictures and slidefilms.

Just what kind of jobs can films do best? About the only generalization that we can make is that they are used in situations where thoughts must be conveyed to groups vividly and quickly. But there are exceptions even to this statement, for films have been made to show to only a few individuals, and carefully planned, expensive productions have sometimes been filmed for use in law suits. During the war, the author did considerable preliminary work on an elaborate Technicolor picture that was being designed to show to only two individuals, Winston Churchill and Joseph Stalin.

The use of the audio-visual medium by industry has made especially significant advances in the last 5 years. The pressure of war made it imperative that many workers learn entirely new skills. In creating and fostering the program necessary for the development of these skills, both government and industry produced an immense number of films, many of which are now available for outright purchase, rental, or loan. These films, which cover many phases of industry, have a definite place in developing America's peace-time economy.



The wartime industrial training films of the United States Office of Education, now available for general use, were produced with great care and under competent supervision during all stages of production.

The Division of Visual Aids for War Training, U.S. Office of Education, produced the major portion of these films to provide assistance and guidance to groups with similar interests. During the war, 466 sound motion pictures and 432 film strips were produced. According to Floyd Brooker, director of the program, each and every subject selected for production under the wartime program was carefully weighed and judged by a number of criteria, not the least of which was its peacetime usefulness. Each film should, therefore, find important present-day use. Some of the subjects, such as those on shipbuilding and aviation, will find less use than others owing to the decreased need for training personnel in such fields. However, those produced in such fields as automobile operation and maintenance, supervision, basic engineering, refrigeration, woodworking, foundry practice, papermaking, plastics, welding, electricity, sheet metal work, machine shop work, radio, mathematics, and safety, when supplemented by the hundreds of other subjects that have been released by other governmental agencies and by industry itself, represent an inventory of films covering basic skills that should lead America to constantly greater productivity. They will serve as a modest introduction to audio-visual training in many small plants and help to supplement the specialized programs in the larger industries.

How does one start a visual program? There is no necessity, nor for that matter is it advisable, to jump immediately into an expensive production program. The regular use of films is the best way to learn how to use them and to find the type that you may want to produce for yourself. A 16-mm sound projector, a silent-slidefilm projector, and a good screen are all the equipment needed for a start. This equipment can be purchased outright for a little over \$500 and in most localities can be conveniently rented on a daily, weekly, or even hourly basis.

Films should be rented or borrowed for use in initiating your program. When you find a film that seems tailor-made for your use, a print can usually be purchased. A modest budget devoted to the assembly of a basic film library will pay handsome dividends, for one of the most important elements in proper film utilization is the use of a film at the proper place and time. Only through owning your own films will you be able to do this consistently. A booklet entitled "Index of Training Films" lists over 1,700 films of interest for industrial use, gives a brief description of their subject matter, and tells how and where to obtain them. In the Appendix you will find this book and other publications listing sources of various types of films.

All films should be previewed before they are used. This may seem a trite statement, yet it is not usually done, and the embarrassment caused through using a poor or inappropriate film can be avoided only by a strict preview rule. Unfortunately all films are not good, and the short thumbnail sketches given in the various film listings are easily open to misinterpretation. In booking a film, allow ample time for the person who is to present the film to study it in advance. Only in this way can proper utilization be assured.

Effective as the film medium is, its full benefits can be obtained only through proper use, which requires discussion and if possible practical application immediately after the showing. This takes planning. It should be remembered that the film is a tool of the instructor—a very potent tool, it is true, but one that must be wisely used. Many films for training purposes have specially prepared instructor's manuals accompanying them.

Motion pictures for training are sometimes supplemented with a silent film strip that emphasizes and reviews the important points, presents supplementary material, or serves

as a visual test. The slidefilm can also be used by itself for training applications. Although it lacks the glamour and does not possess the versatile power of the motion picture as a means of communication, it has many important assets when used as a training tool. Not the least of these assets is moderate cost, which often makes the slidefilm the logical medium with which to start a visual program, whether you plan to rent, buy, or produce your own films.

What Is a Visual Aids Unit?



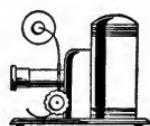
A training film

+



An instructor's manual

+



A silent filmstrip

All intended to be used together in training classes

The *training film*, a sound motion picture, is the core of the unit. The *filmstrip* emphasizes and reviews important points in the motion picture. It also provides additional information and suggests other applications.

The *manual* suggests ways of using both the *training film* and the *filmstrip*.

This visual aids unit, properly used, will result in—

*A shorter period of training time
and better performance on the job—*

U. S. Office of Education.

It is also well at the beginning of your visual program to appoint a projectionist for your organization. In most instances this will be a part-time job, so someone should be



Ballard-Bowman F

Employees of Montgomery Ward & Company are shown a color slidefilm depicting the history and development of the organization.

selected who is readily available. No great amount of mechanical knowledge is required, for teen-age children are regularly acting as projectionists in schools. However, someone who will be interested in the work should be found, since sloppy projection can ruin not only the film but the showing as well. The projectionist should be provided with the "Projectionist's Handbook," published by *Business Screen Magazine*, 812 N. Dearborn Street, Chicago, Ill. Insist on careful preparation before each showing, and you

will make the use of films by your organization much more profitable.

After stock films have been experimented with, it will be much easier to ascertain the places where special productions can be used to advantage. Such uses will logically present themselves. Those who intelligently produce films do not start with the premise that they are going to make a picture and then look around for a way in which to use it. Rather films are but one of the tools that the alert business executive keeps constantly in mind for possible use in accomplishing specific objectives. When film production is approached with this attitude, it is certain that the objective of a film is clearly understood, and thus planning can proceed on a firm foundation. This seems a simple premise, but actually many films are started and in fact some completed without there ever being a clear understanding of the objective. Of course, the audiences of such films—if they have audiences—are left in a confused state, and the motion picture takes the blame.

For internal business-group showings industry has found that the greatest uses for motion pictures are in training production, sales, and service personnel, in promoting safety, in improving labor relations, and for scientific analysis and time study. Let us therefore look into the possibilities of using films in each of these applications.

FILMS IN PRODUCTION TRAINING

It has been said that the problem of production is always a problem of training. This is probably the reason that the value of films has been more completely and incontestably proved in the area of job training than in any other field of utilization. In this field we are dealing with tangible production matters, and the improvements that films bring to

a training program can be measured by the degree to which they shorten the training period and by increased productivity. Stating the case for such films is similar to arguing the value of the printing press. It is sufficient to say that the experience of a multitude of industries and many government agencies has demonstrated that the proper use of motion pictures and slidefilms can measurably speed training. In certain Navy wartime applications, the introduction of films cut the length of time required for mastery of a subject by 75 per cent. However, as an over-all average, 25 per cent is a rate of improvement that might reasonably be expected.

It should not be forgotten that we chiefly learn by doing. Any visual training program must therefore be carefully integrated with actual on-the-job experience with the work demonstrated on the screen. Otherwise the lesson will be promptly forgotten. A vivid demonstration of this was illustrated in the use of a silent slidefilm on knot tying by the Navy. Until proper utilization was achieved, the film was shown in a classroom period, and then sometime the next day the class was taken out for practical exercise in knot tying. Used in this way the film proved to be of very limited value. With proper utilization, each man was given a piece of rope and directed to follow the procedure outlined on the screen. Immediately training time was cut over 50 per cent.

When it is necessary to recruit inexperienced help, the problem of training is, of course, great and the opportunity for the use of films is broad. However, the majority of films for such basic training need not be specially produced. Stock films are available in great variety for use in the development and improvement of basic skills. Aside from the previously mentioned "Training Film Index," it will be well to obtain the catalogue of "Films for School and Industry,"

published by Castle Films, 30 Rockefeller Plaza, New York 20, N.Y., who distribute films under contract with the United States government. The 643 government-produced motion pictures and 524 slidefilms listed in the catalogue may be purchased direct from the Castle Films offices in New York, Chicago, and San Francisco or from more than 250 visual-education dealers located in every one of the 48 states.

All of the above-mentioned films were most carefully produced by the best industrial producing organizations under the supervision of government audio-visual specialists. The staffs of professional and technical societies, schools, and leading industries, working with the practical assistance of master craftsmen and foremen, aided in the production of these films to make them the most efficient training aids possible.

The value of each of these films, many of which are correlated with film strips and printed manuals, has been clearly established. If they in any way fit your needs, you are overlooking a windfall if you do not use them. Most certainly do not let anyone induce you to produce a film until you have investigated the motion pictures and the sound and silent slidefilms which are available for unrestricted use through the rental or sale of prints. Even though such material does not exactly meet your needs, it will provide a wealth of ideas as a basis for any special production you may undertake.

The following outline* of the purposes of the three elements (Manual, Motion Picture, and Slidefilm) of the visual aids units produced by the U. S. Office of Education not only suggests proper utilization procedures for these films but outlines a set of standards for any film production program.

* Courtesy of *Business Screen Magazine*.

The Visual Aids Unit

THE MANUAL should be read first by the instructor to make a teaching plan for the unit.

It gives follow-up activities amplifying the film presentation.

Presents a pattern for use of film and slidefilm.

Presents discussion questions to complement and supplement film and slidefilm.

Analyzes film and slidefilm content.

Organizes film and slidefilm into a teaching unit.

Suggests best teaching techniques to present subject matter covered by film and slidefilm.

Lists available related films and slidefilms.

Authenticates the unit by naming individuals who cooperated in production of the unit.

THE MOTION PICTURE provides basic orientation.

Explains the principles involved, shows the correct working procedures and time sequence of the job.

Establishes a working vocabulary applicable to the job by using trade or shop terms.

Relates the specific job to other similar jobs.

Develops good working attitudes—encourages pride of craftsmanship.

Arouses and stimulates the emotional side of learning through "self-identification."

Provides animated diagrams to clarify teaching.

Becomes the presentation of a "master teacher" because it shows the best practice to every student the same way every time.

THE SLIDE FILM provides material for detailed and critical analysis and discussion of the steps in the operation.

Highlights and clarifies specific teaching problems.

Reviews pictorially and provides a test for the class.

Supplements the film content. Shows alternate procedures and includes pertinent static material not applicable to the motion picture.

Correlates verbal and pictorial presentation of facts.

Divides the teaching unit into discussion topics.

Aids students to verbalize what was learned pictorially from the motion picture.

Serves as a pictorial medium for suggested follow-up activities. Allows local adaptations.

Some training directors claim that a poor film properly used is superior to an outstanding film which is simply thrown at the audience in a slipshod manner. All such generalizations are open to question, but the fact remains that proper use can greatly increase a film's effectiveness. No definite formula for use can be given, for the most important element in film utilization is gearing it to the specific needs of the audience. However, the following approach has produced excellent results in a number of industrial applications and can well be used with suitable modifications to suit the time and place.

1. Short introduction by speaker explaining the importance of the film to the audience and why it is being shown at this time. Give an incentive for close observation of the film by throwing down a challenge to see who can remember the most and announce that an open quiz and discussion will follow the film.
2. Show the film. Make certain that proper preparation permits the showing of the film by the mere throwing of a switch, without attaching wires, fidgeting with the focus, and experimenting with the sound.
3. A review quiz, from specially prepared questions. Have a copy of the script handy for reference. Lead a discussion of provocative ideas suggested by the film.
4. Adjourn to shop or office to drill immediately in new techniques—"learn by doing."
5. Show the film again after a day or two of practice, and preface its projection by a discussion of fine points to watch for.

Most industries have evolved special production techniques requiring that each specific job be done in a certain way. Although an employee may possess the basic skills necessary, he usually requires a training period to acquaint him with the special requirements of a new job. Specially produced films can do an outstanding job in such training.

Motion pictures and slidefilms for this purpose require careful preparation by experts familiar with the technique of training films, but their cost need not be prohibitive. Elaborate sets, costly talent, entertaining dialogue, special music, and the other expensive elements required for producing films for the consumer market are replaced by simple photographs of capable workers in your own plant. Since slidefilms are much cheaper, they will be most practical for smaller operations and may even prove more desirable where the budget will stand a motion picture if motion is not actually required to clarify the instructional procedure.

When the need for a visual training aid suggests itself for your organization, the advisability of undertaking production should be carefully judged in the following way. From your experience with stock training films, estimate how much a specially produced training film will speed up training of new employees and how much it will increase production of those already on the job. Translate this into dollars and cents for what you estimate to be the normal life of the film. Balance this figure against the normal production cost of a one-reel, 10-minute sound motion picture of approximately \$5,000, a 50-frame silent slidefilm of about \$1,000, or a sound version of the slidefilm of about \$1,250. If the proposed production seems like a businesslike venture, actual production estimates can be obtained, for they may vary from slightly below these figures to amounts several times greater for more complicated productions.

Films should not be too loaded with details, nor should they be overlong. Twenty minutes is about the maximum length for a training film, and the closer one is kept to 10 minutes the better the result is apt to be. In fact, two 10-minute films on a subject will almost always prove more valuable than a 20-minute film covering the same subject.

The organization of a training film is extremely important to its success. This organization, although the prime responsibility of the producer, should be carefully checked. Unfortunately, all script writers do not have orderly minds. To check the organization of a film before the sound is finally combined with it, project it in silent form. If the ideas flow smoothly without the necessity for words, you can be certain that it is organized in an orderly manner. The chapters on film construction give an insight into the many elements of production that make for a successful film. The chief requirement for successful production of training films is to keep them simple and to the point. Leave the Hollywood-type frills for the sales and public-relations films.

SALES TRAINING FILMS

Since few, if any, salesmen come even near to approaching their sales potential, the constant necessity for intelligent sales guidance is one of the greatest needs of business. The film is one of the most forceful mediums for sales training; and because of its versatility of expression, the same basic ideas can be repeated in film after film in such varied dress as to win new interest constantly.

The majority of sales manuals provided by business are not even read, and those which are started are seldom completely finished. The film has the advantage of holding attention through its length. Films, therefore, have a prime usage not only in training salesmen but in keeping old salesmen on their toes. In fact, a short basic film on salesmanship that sticks to facts can be shown over and over again at regular intervals, for in salesmanship, it is often not so much the lack of knowledge as the lack of application that results in failure.

Sales conventions can be sparkled up with the use of films. For such occasions variety is important. Therefore, all methods of communication should be used where possible—demonstrations, lectures, playlets, films—to present important facts in the best possible manner. Short entertainment films, cartoons, or sporting shorts can often be used to advantage for a period of relaxation between sessions.

Sound and silent slidefilms and motion pictures all have an important place in bringing to salesmen accurate, interesting information on their products and how to sell them. In larger organizations enough applications can easily be found to use each of these media in its rightful place and to its full advantage as a means of communication.

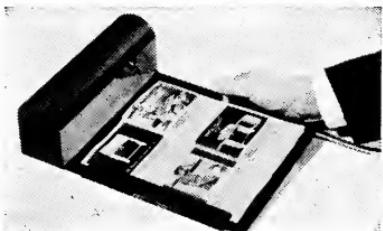
Some companies that can well afford the use of any medium still prefer the silent slidefilm for sales training purposes. The General Electric Company, large users of the medium, in their book "The Why and How of Training Retail Appliance Salesmen" states that

Slidefilms are without question the most practical and inexpensive aids for group training. They can be made to illustrate almost any point, whether mechanical or dramatic, and their cost is extremely low. Carefully prepared in advance, they provide the speaker with a well organized visual presentation having far greater "learning value" than most other methods.

The method developed by General Electric to train their 25,000 appliance salesmen presents several interesting innovations. One is the use of a device that they call a "portable pulpit." In reality it is a special clip board holding a carefully prepared printed text to accompany the projected slidefilm pictures. At the top of the board is a hooded lamp to illuminate the text. There is a push-button switch which is used to flicker the light as a signal for the projectionist to turn the film to the next picture. Since the "pulpit" is con-



For sales training the General Electric Appliance Division uses silent slide-films. A running commentary is read by the instructor with the aid of a "portable pulpit."



structured of lightweight aluminum, it can be carried in the speaker's hand much as a book. As he addresses the salesmen, he is free to move around in an informal manner. The advantages of a flesh and blood speaker are thus maintained; and since he is working from a carefully prepared script, all the advantages of the most advanced sales thinking are put into his mouth. Actually, the presentation is a sound slide-film without the recording but narrated by a speaker for each showing.

This technique of presentation allows the trainer an opportunity to pace his talk to the level of the audience and pause for questions whenever necessary. The carefully planned

presentation has the further advantage of "training the trainer."

Accompanying each slidefilm is a pocket-size booklet carrying reproductions of each picture shown on the screen together with the text that accompanies it. These booklets are distributed to each salesman after the film showing for use as a permanent reference guide in selling General Electric appliances.

The films, together with the "pulpit," booklets, and speaker's text, are sold at a nominal cost to the General Electric dealers throughout the country. In this way the cost of the training programs is largely financed.

Although the General Electric sales training program is designed primarily to utilize the silent slidefilm medium, the basic principles that underlie their program are valuable for any approach. They are



1. A basic training in underlying principles of salesmanship.
2. Specific instruction in selling particular products, emphasizing important sales points, and anticipating possible objections. In this phase of the training, it is demonstrated how the basic technique of selling can be specifically applied to the product in hand.
3. Continuous sales education designed to "keep the salesman informed on new products, new product features, competitive situations, new sales techniques, policies, sales promotions, etc." An important function of this training is to help maintain the salesman's enthusiasm for the company that he represents, the products that he sells, and his job as a salesman.

Motion pictures, which have more audience appeal than slidefilms, are extremely valuable in training retail salespeople who need a little more sugar-coating on their training program. The lack of training and preparation given to the average clerk behind the counter in thousands of stores is nothing short of tragic. A few clerks with more than ordinarily inquisitive minds manage somehow to fortify themselves with facts on the products that they must sell, but even these few sometimes find it hard to tell what they know to the customer. Too many clerks are still waiting for the customer to come in and take the product away from them. No attempt is made to do a selling job. The price of the item is often the full extent of their knowledge, and often they are at a loss to know even this if it is not clearly marked on the box. Correcting these conditions is a training need easily filled by the film medium and is certainly an important part of sales training.

The Associated Merchandising Corporation, with 24 department stores throughout the country, is using a 20-minute film entitled "More Power to You" to induce employees to be more thoughtful and considerate in handling customers. Showing of this film to more than 50,000 of the company's employees should result in more satisfied customers, leading to greater sales. With even a fairly high budget for the film, the possibility of improving each clerk's sales personality only a little easily justified production of the film. The film is available to stores outside the Associated group who operate in noncompetitive territories.

Organizations with dealers scattered throughout the country seldom find it possible to bring more than a few top representatives for a personal visit to their home office and plant. Yet the desirability of acquainting each sales representative with the details of manufacturing and of giving

each the "feel" of the organization so that they can speak with authority about it is apparent. Think what it would cost the Fuller Brush Company to bring their normal sales force of more than 6,000 men to visit their Hartford plant. How easily, through the use of motion pictures, they are taken on a 30-minute trip through the plant and shown in intimate detail the interesting manner in which the many varieties of brushes are made. Such a film can be used for general promotional purposes as well, reaching a wide public audience.



From "How to Win a Sales Argument."

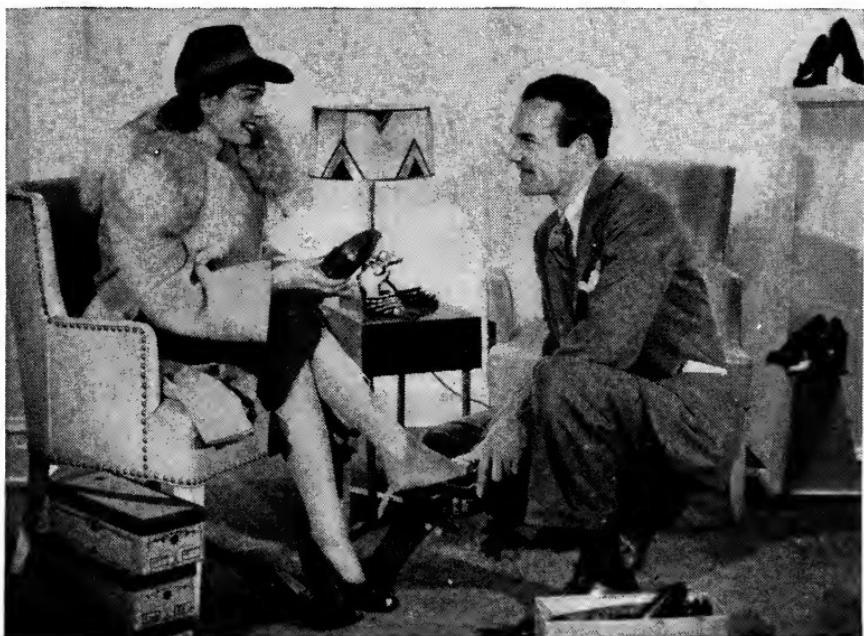
Syndicated sales training films vary greatly in quality, but they all stimulate constructive thinking.

Syndicated sales films offer at a nominal rental fee sales training messages infinitely more dramatic and forceful than most companies can possibly create within their limited sales training budgets. Naturally these stock productions must be very general in their message and do not have the advantage of pointing out specific applications for a manufacturer's product. However, Richard T. Borden, an outstanding sales

consultant and lecturer, suggests that much value can be obtained from such syndicated productions if they are introduced by an announcement such as

Fellows, the film we're about to look at was *not* prepared for our particular business. It *does* illustrate, however, how some top-ranking salesmen in other fields get results. What I want you to do is "pick the brains" of these winners in other fields . . . and locate every idea *we* can apply to *our* kind of selling. After the film is over, I'm going to check to see how many good "brain pickers" we've got in this group.

The greatest problem in the use of syndicated sales films is discovering the source of good material, for much of it has been privately produced and is available only for limited distribution in noncompetitive fields. In the department-store field, for example, The May Department Store Company in Los Angeles has recently produced a series of



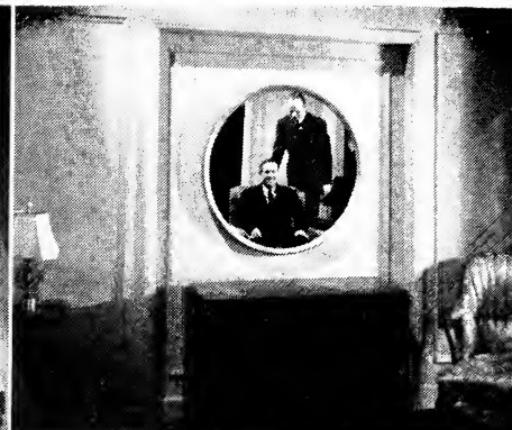
From the Dartnell slidefilm, "Modern Retail Salesmanship."

Jamison Handy
PRESENTS

The FACE IN THE MIRROR

"I WONDER"

JAMES HANLEY ORGANIZATION



"The Face in the Mirror" is a sales training film available through the Jam Handy Organization. In it James Dunn, outstanding Hollywood star, points out common mistakes in retail salesmanship and offers constructive suggestions applicable to any form of selling.

Kodachrome motion pictures covering the major elements of department-store selling and has made them available on a lease basis to schools and other retail organizations.

Crowley Milner and Company in Detroit devised a complete training kit centering around five sound slidefilms and call it their "Be Helpful" training course. The five films make up a serial story about department-store salespeople. Into their story is woven a complete training course in human relations for retail salespeople. This training kit is also available to other stores interested in developing the people behind their counters into really competent retailers.

The best way to keep abreast of the availability of sales training films in the various fields is to follow closely the announcements in the various trade magazines. Often the editors of these magazines keep a record of the sources of such material and will supply it on request. Some well-known films in the field of sales training and the sources where they may be obtained are

THE FACE IN THE MIRROR, a visual training tool widely used in the retail field. This motion picture applies the "see yourself as others see you" theory to retail salesmanship. It is three reels in length and stars James Dunn. In pointing out common mistakes in an effort to get the individual salesman to realize his own weaknesses, the film offers constructive suggestions for improving customer relations and increasing sales. Available through the Jam Handy Organization, 2821 East Grand Boulevard, Detroit 11, Mich.

BORDEN & BUSSE SALES TRAINING FILMS, a series of five sound motion pictures entitled "Making a Sales Presentation Stay Presented," "How to Win a Sales Argument," "How to Make Your Sales Story Sell," "How to Remember Names and Faces," and "The Autopsy of a Lost Sale." Full information, rates, and descriptive literature from Modern Talking Picture Service, 9 Rockefeller Plaza, New York 20, N.Y.

BEHIND THE COUNTER, a series of five sound slidefilms for instruction of retail salespeople in store conduct and customer contact. The titles are "Friendliness behind the Counter," "Attentiveness," "Sincerity," "Helpfulness," and "Enthusiasm." Available from the Jam Handy Organization.

SELLING IN AMERICA, a visual training kit containing five sound slide-films and one motion picture, with booklets for class use and a leader's guide. The basic principles of human reactions that are applicable in selling are discussed. The producer claims that the kit represents a cross section of experience gained from 6 million training meetings encompassing 87 types of businesses. For sale by the Jam Handy Organization.

PROSPECTS SET THE PACE, a one-reel motion picture based on the theme that salesmanship is selling people, not merchandise. Available on free loan from Westinghouse Electric & Manufacturing Company, Post Office Box 1017, 306 Fourth Avenue, Pittsburgh 30, Pa.

STRATEGY in SELLING, a series of seven sound slidefilms, presents the following titles: "Planning the Sale," "Getting Better Interviews," "Making the Presentation," "Disposing of Objections," "Closing the Sale," "Managing Your Time," and "The Way to Leadership." Series sold outright by the Dartnell Corporation, 4660 Ravenswood Avenue, Chicago 40, Ill.

MODERN RETAIL SALESMANSHIP, a series of seven Dartnell sound slide-films. The titles are "The Knack of Greeting Customers," "Know Your Merchandise to Sell It," "How and When to Use Suggestion Selling," "Handling Typical Customer Objections," "Closing Sales by Helping Customers," "Developing a Good Sales Personality," and "Winning Friends for Your Store."

MODERN LIFE INSURANCE SELLING, a series of seven Dartnell sound slidefilms. The titles are "The Technique of Getting an Interview," "Establishing the Prospect's Needs," "Presenting a Program to Fill the Need," "Steps in Motivating the Prospect," "Handling Typical Objections to Buying," "The Life Insurance Closing Process," and "Getting in the Top Brackets."

MERCHANDISER TRAINING FILMS, sound slidefilms produced by *The Syndicate Store Merchandiser Magazine* and designed primarily for variety-store employee training but interesting in many other fields. Titles: "The Knack of Wrapping," "How to Teach a Job," "Step into Customer's Shoes," "Cash Registering Made Easy," "Fire Is Your Responsibility," "What It Takes," "The Case against Shrinkage," "Tommy Fork and His Fountaineers." Available from Syndicate Store Merchandiser, 79 Madison Avenue, New York 16, N.Y.

"Selling in America" kit consists of five sound slides, a two-reel motion picture, booklets for class use, and a meeting leader's guide. This is one of over two dozen different kits produced and distributed by the Jam Handy Organization.



FILMS TO PROMOTE SAFETY

While safety training is similar in many ways to other types of training, it presents such an outstanding opportunity for picturization that the film medium has been widely used. There are, therefore, a great number of slide-films and motion pictures available for industrial use. The National Safety Council publishes a catalogue* of safety films which lists over 400 films on safety and allied subjects, provides data on their content, and tells where and how they may be obtained. The council makes annual awards for the most outstanding slidefilms and motion pictures on home safety, traffic safety, occupational safety, farm safety, and general safety.

It is practical for only the largest organizations to produce their own safety films for use exclusively within their own organizations. However, many companies produce safety films for general release as a matter of good public relations. Such films have a prime use within the producer's own organization. In order to make the production of safety films practical, companies with similar production problems and interests sometimes sponsor films jointly or contribute to an industry pool for such purpose.

The insurance companies, with a very direct interest in safety, have sponsored many outstanding films. The Zurich General Accident and Liability Company is producing a series of films that are especially valuable. Their program is based on the established fact that the way in which a man acts on his job is a direct by-product of the way in which he acts when he is away from his job. Many industrial-education programs fail because the employees have the attitude "This may be okay for the boss, but what good does it do me?" Even in matters dealing with employees'

* See Appendix.



own well-being, they are often suspect of the warnings and advice of management. The Zurich program succeeds because the films are produced from the viewpoint of the employee and his family. They demonstrate how the worker can earn more and enjoy more by keeping in the "safety zone" right around the clock.

The reduction of accident frequency has been the demonstrated result of the regular use of the Zurich films. An important by-product of the intelligent approach used in these films is the fostering of a more cooperative attitude between labor and management. In fact, the motion-picture medium in its many industrial uses can constantly be building more amicable labor relations.

As in the case of sales training films, stock safety films that are not exactly suited for use in a particular industry can be used and made interesting by a short introductory talk similar to that suggested for sales films, stating that the film shows how someone else is tackling the safety problem, and "let's see what they are up to . . . where their problem is similar to ours . . . and what we can learn from it." After all, a man who is thinking seldom has an avoidable accident, and the other fellow's safety film may start your employees thinking as much as one tailor-made for the job.

A stock film can be made more intimately applicable to the problems of a particular industry by producing a special short sequence either to preface or to follow up the showing of a syndicated film. A slidefilm can also be used for the same purpose.

Since industrial safety is largely a matter of proper supervision, films such as the U.S. Office of Education production "Safety in the Shop," which emphasizes the supervisor's responsibility in teaching and maintaining safe practices, should be shown to all managerial employees.

An important subdivision of safety is in the training of employees in proper first-aid procedures. When an accident does happen, the unfortunate results can be greatly mitigated by prompt constructive action. It is imperative that someone be always available who will know how to give first aid until the arrival of a doctor. The only way to ensure this is to instruct everyone in first aid. Procedures that would require hours of verbal instruction can be shown vividly and grasped quickly when actually seen in picture form. First-aid motion pictures and slidefilms are a vital part of all safety programs. Therefore, in addition to films on safety first, there should be films on first aid.

Another important safety precaution is the proper care of employees' health. Health films can be shown alternately with safety films during training periods and at other employee gatherings. A number of especially interesting films on tuberculosis are available from the National Tuberculosis Association. On heart diseases, there is the film "The Human Heart," and on cancer "Cancer, Its Prevention and Cure." There are a number of films on venereal disease available designed for showings to segregated male and female audiences.

FILMS IN LABOR RELATIONS

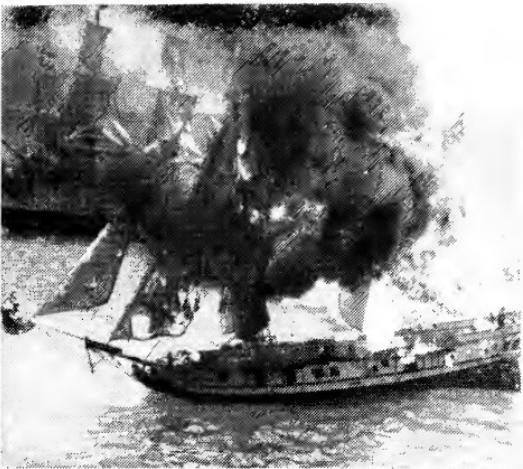
Films present almost limitless possibilities for implementing and developing a sound employee-relations policy. Since witnessing a motion picture has many of the advantages of a real living experience, it can be adroitly used to humanize the problems of business and management. Controversy is difficult when there is understanding, and the motion picture, with its ability to emotionalize, dramatize, and explain, can do much to implant in the minds of employees those concepts which will make for coordinated ideas and ideals among all divisions of industry. Although the slidefilm is

limited in its application in the field of labor relations, it has value in presenting factual material and can often serve as an inexpensive substitute for motion pictures.

Men are no longer robots who can be ordered around without reason. Good labor relations must, therefore, acquaint each employee with the reasons behind the organization of his business existence, play up the importance of his work, and give him pride in his personal performance and in the performance of his industry as a whole. Company policies specifically designed to promote the well-being of the employee should be clearly explained so that they will be understood and appreciated. Explaining such things to the employee is industry's most difficult communications job. All possible means should be used; and because of the unrivaled potentialities of the motion picture and slidefilm for this work, they should be used to the greatest possible extent. One interesting application of this policy is to film important conventions in order to permit all employees to "go" to the meetings. Several important companies have instituted such productions as a standard policy.

The use of entertainment films, both feature length and of the short-subject variety, for employee showings during lunch and rest periods, presents many advantages. Not the least of these is the gathering of a regular audience permitting the occasional showing of informational films to dispense a message that management wishes to get across. Many plants find that they reap unexpected advantages from an entertainment film program. Employee morale tends to improve; employee turnover lessens; and the rate of accidents due to fatigue decreases.

In isolated communities entertainment films, where the workers are allowed to bring their families, prove extremely important. Excellent programs of recent Hollywood films



Typical stills from Hollywood features which are available for showing to any audience. The pictures shown here are from "The Count of Monte Cristo," "Captain Caution," "The Last of the Mohicans," "Winter Carnival," "Moby Dick," "The Wizard of Oz," "The Thin Man," "The

can be presented at such shows if the location is not within convenient traveling distance of a regular theater. To preclude the possibility of showings competing with the regular theaters, the major Hollywood producers, whose products are available, require special location approvals for the showing of their films. Although most industries are located in towns with theaters and cannot obtain approval for such showings, many independent feature productions are available for showing at any time or place for a small fee. There is a wide choice of musicals, dramas, comedies, mysteries, and westerns, featuring top-ranking Hollywood stars. Endless short subjects are available, and the wide selection of musical shorts is worthy of special consideration. Truly interesting sponsored films can be obtained free. Sources of these films are listed in the Appendix.

Since it is only in relatively small companies that employees understand the workings of all the departments within an organization, it is good policy in large firms to show as often as possible specially produced films that explain the many ramifications of an organization. Companies with thousands of employees can afford rather expensive productions dealing with company history and interesting corporate activities.

The cost of such productions often divides down to only a few cents per employee. The same film or special versions can be made for general promotional activity outside the organization. An interesting idea for an employee-relations film is a company newsreel. This can be an inexpensively produced film not only reporting company activities but featuring employee accomplishments both as groups and as individuals in such fields as production and safety. Special features such as nominations for beauty queen, employee hobbies, sporting events, and service records are always



A feature-length film, "Heritage for Victory," was produced in Hollywood for the Western Electric Company to show to their 100,000 employees on the organization's seventy-fifth anniversary.

good, and every now and then management can subtly grind its own axe. Shots of employee groups engaged in everyday activities but photographed without their knowledge can create an immense interest in such a newsreel. Such production can be easily taken care of by a regular photographic department using home-movie-type cameras and film. Although high professional quality is always desirable, it is not imperative for interorganizational work any more than it is necessary to use fine letterpress printing when mimeograph will do the job. For such purely company activity, the expensive and complicated elements of production such as professional script writing, animation, direct dialogue, and optical effects need not be used. Narration to accompany the film can be read over the public-address system. If such a system is not available, the sound projector can easily be used for the purpose by obtaining a microphone and merely plugging it into the receptacle pro-

vided for the purpose on most machines. If the film is to be run on more than one occasion, an instantaneous recording can be made on a phonograph disk and played at will in approximate synchronization with the film.

Such a newsreel type of production need not necessarily be produced at regular intervals. Some firms photograph only important events, such as company anniversary celebrations or the visit of a famous personage to the plant. Regardless of the scope of such a program, it should be directed by someone experienced in public relations who knows the essentials of human interest. Generally speaking, the advertising manager, publicity director, and house organ editor are the best qualified for such an assignment.

Since pride in company is closely linked with pride in the company's product, it follows that acquainting employees with the finished product and its advantages is good policy. Thus films specially produced for advertising or even for sales training can be shown to advantage within the production organization.

Getting an employee off to a good start on his job is one of the most important elements in any sound employee-relations program. First impressions are difficult to change. Therefore, many organizations find that it pays dividends to indoctrinate an employee into his new job with a carefully prepared motion picture or slidefilm. Although it is sometimes necessary to show such a film to an audience of only one or two new employees, many organizations find such a showing one of the most important phases of their entire employee-relations program. It plays up to an individual's ego to have such a showing; and if the worker is given an understanding of his contribution to the whole, he will take pride in his job no matter how lowly the screw that he turns. The American workingman wants to know the importance

of his efforts, and the wise employer will make sure that the worker fully understands the relation of his task to the whole and that he knows something of his company policy.

FILMS FOR MANAGEMENT

The use of films to communicate ideas within the ranks of capital and management has become an important though limited use of the film medium. Slidefilms have proved of immense value to the understanding of complex charted data. The United States Steel Corporation interpreted its annual report in motion pictures and several years ago the



More than 2,500 stockholders, at seven regional meetings, saw General Mills film version of their annual report entitled "Operation '46."

Paper Bag Manufacturing Institute successfully achieved a better and clearer understanding of a highly statistical chart analysis of its industry through the film "The Paper Bag Industry." The slidefilm that solved their problem presents the charts one at a time and then combines the elements into a meaningful whole. Such technique gives dramatic

impact to figures, which are traditionally uninteresting to most people.

There are many highly technical applications of motion pictures in scientific analysis. Cameras are used that vary from the standard of 24 frames a second to as fast as 3,000 frames in the same period or as slow as one exposure a day. Stroboscopic films enable detailed study of successive phases of extremely fast motion. X-ray and photomicrographic films are other tools of the scientist.

The motion picture is also an aid to time study. Slow-motion pictures permit detailed analysis of operations that are otherwise difficult to analyze. By including a clock with a large-sweep second hand in the picture frame, an actual time check can be taken, for the time reading will be accurate to the true-life situation no matter at what speed the camera and projector are run. A plant in Detroit with similar equipment to a plant in New York found that their production rate was 20 per cent lower. Inexpensive direct 16-mm motion pictures were made of both operations and projected side by side on the same screen. Immediately the cause for the production differential showed up. The New York plant was employing Negro help, and a rhythm was apparent in their entire physical action. Their bodies seemed to be coordinated in a smooth-flowing action. Further investigation showed that broadcast music tended to improve the rhythmic action of the New York workers.

The proper use and development of the motion picture and slidefilm as a tool of management call for a high type of creative and constructive thinking. The film medium has already proved that it can perform a highly important service. The medium is still new. The opportunity for further development is great.

Chapter 5

THE MOTION PICTURE AS A SALESMAN

BEFORE THE Second World War, producing organizations that served business and industry were comprised largely of writers, directors, photographers, and editors who had received their training while working on entertainment films. Many of the free-lance workers alternated between theatrical and nontheatrical production. It was only natural, therefore, that productions were sometimes more theatrical than practical. All too often the Hollywood formula of "boy meets girl" was employed. The girl would sparkle, and the boy would come running, but always with a vacuum cleaner or washing machine; and although the girl got her man, she was apt to find herself up to her ears in somebody's soap chips. The dangers of mimicking Hollywood became apparent, and nontheatrical producers began to realize that when they invited direct comparison by similar treatment, they could not expect their films to compare favorably with those costing ten or fifteen times as much.

Gradually nontheatrical producers began to break away from the theatrical tradition. But it took a global war to force a radical change in their thinking. The exigencies of the times required that their production facilities be devoted solely to wartime needs. This brought about the use of the motion picture as a medium for the systematic guidance of thought. Producers became training-film conscious, and their staffs were augmented by educators and scientists. In producing films they learned *to find the story in the subject and not to create one about it.*

Nontheatrical producers have now turned to peacetime production with a more practical attitude toward the motion picture. Films are tending more and more to tell something of value—how to work, how to play, how to live. By and large, theatrical-type entertainment is being left to the theatrical screen. This does not mean that fine showmanship, humor, and the highest art of sound and pictures are not to be used. After all, a sales-promotion film must hold the attention of its audience and send it away with a lasting pleasurable sense of having had a worth-while experience. Without doing this the film can never accomplish its ultimate purpose of conveying certain truths important to the sales or public-relations policy of its sponsor. The non-theatrical film will, however, always be at its best when reporting everyday life, documenting industrial America, and showing people how to do their jobs better. This can be done and done well on commercial budgets, and the finished product can be artistically, technically, and dramatically up to the high standard that the American public has come to expect on its screen.

It must be remembered that a film is a highly concentrated form of advertising and selling. Like a highly concentrated drug, it must be administered with care or it may do more harm than good. It is well to remember that a film best serves its sponsor when it performs a genuine service for the public. Radio sponsors have found that too frequent commercials do their product more harm than good. This is doubly true of a film where the audience is unable to turn a dial and get another program. The ideal function of a commercial film is to bring to the attention of its audience industry's service toward the well-being of the American public. Films that do not contain an overdose of selling but have their sponsor's story carefully woven into their struc-

ture will find a market of wide opportunity in the non-theatrical field of the future.

Films can be designed to accomplish a sales job under almost any imaginable condition. However, since good films are costly to produce, they are usually limited to applications where a substantial budget is possible. This does not mean that a great number of sales outlets are required in



General Screen Advertising.

Crackers in bed demonstrate that Ontario Club Crackers don't crumble.

order to provide numerous showings for the film. The deciding factor is always the importance of making the sale. Some films are designed for only one presentation where the sale involved is sufficiently large to justify the expenditure. Many more such films are made than is realized. Films designed for general public distribution are naturally better known, but films designed to show to industrial executives, boards of directors, government agencies, and buyers of highly specialized and expensive products and services are daily performing an important business function. F. C. Huyck & Sons, with only 10 salesmen and 700 accounts,

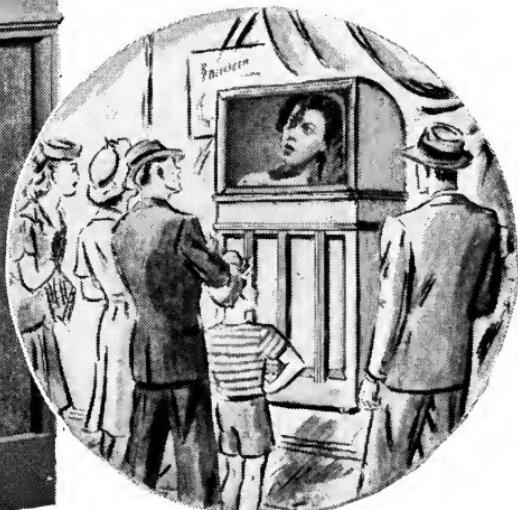
recently produced a \$20,000 film for their salesmen to use in order to make their calls more profitable. At the other extreme, we have films such as General Motors' production "Lest We Forget" designed for release to the whole American public to tell the story of the development of the automobile and General Motors' contribution to that development.

The use of motion pictures for consumer education is growing. The public constantly demands more informative matter in its advertising. Such pictures as DuBarry's "Fit and Fair" and Johnson & Johnson's first-aid film "Help Wanted" are excellent examples of films that serve a real need. "Fit and Fair" shows the teen-age girl how to gain health and glamour by utilizing the routine motions of daily living to develop a sound and beautiful body—how to select the right foods and how to use make-up for natural effect. Originally designed for school distribution it was immediately put into use by Altman's New York department store for their teen-age promotional activities. This set the pace for wide store usage throughout the country. Such consumer-education motion pictures have substantiated their value by increased volume of sales.

Many department stores have long made use of films produced by the manufacturers of products that they sell, but department-store executives have only recently awakened to the possibilities of making films specifically identified with their own store. The field of fashion offers particularly wide scope in this respect. In the past, live-model shows have largely been used to introduce new fashions. These style showings are always expensive and cannot reach a large audience. Mostly they have been limited to society gatherings and have often featured extreme clothes out of the reach of America's average woman. It is certainly worth while for

department stores to produce films featuring their new style lines and show them to many thousands of women at club and other meetings or by continuous projection in the store itself. The same application of the film medium will be used to demonstrate in true-life situations many other consumer items.

Self-contained continuous projectors make it possible to present sales messages in various places of public gathering



Self-contained projectors, such as this Mills Sono-Vision, deliver motion-picture messages in stores, offices, display room, and public places without the necessity for darkening the room and rewinding the film.

or at the actual point of sale. Department stores are a favorite place for such showings, and a company has recently been formed to provide projectors in various strategic locations in department stores where films will be projected constantly. Screen time for such showings will be sold to advertisers at rates varying in direct proportion to the length of the film and the number of outlets used. An advertiser can also provide projection equipment and make his own arrangements for store locations at the point of sale for his product. The necessity for constant servicing of projectors sometimes makes such a procedure impractical unless undertaken on a large enough scale to make the employment of a full-time serviceman practicable.

Large public-service companies in many cities have evolved a novel method to prorate the cost of film production. They produce films with consumer appeal in the interest of general public relations, sales, or service. The films are then offered for sale to similar organizations in other cities. The film may be made applicable to the other localities with only slight modifications which are paid for by the buyer. So similar are the problems of most of the large public-utilities organizations that one film will substantially serve the needs of all. Often the only modification required is a new title.

One of the most important uses of motion pictures is in selling articles that cannot be conveniently shown to the potential customer. Through the use of a portable projector a salesman can bring convincing living pictures of such items direct to the customer. Both silent and sound projectors for motion pictures and slidefilms are available in models that are easily carried from place to place. The presentation of a film when making a sales call naturally takes considerable time and is not justifiable except in selling important items and where the showing will save the customer the necessity

Light, portable, sound motion-picture projectors are now available for salesmen's use.

for a long trip to make a first-hand examination of the product or service. Showing building machinery and such items as prefabricated houses via the motion picture is an important sales technique. In selling real estate it is possible for a client to obtain a very true picture of numerous pieces of property in various parts of the country in a short period of time.

Another interesting application of the sales film is the motion picture that is shown in the prospect's own home. This type film was very successfully used by distributors of the Johns-Manville Corporation in selling rock wool home insulation. Their sound film "The House That Nobody Wanted" was shown in prospects' homes throughout the country. There is a good psychological reaction to such home motion pictures, since sound-film showings are somewhat of a novelty in most homes and offices, and considerable good will for a company can be engendered if the film not only is a sales film but tells an interesting story as well.

Many silent projectors are in use in American homes. Although the cost of generally circulating prints for such projectors would be prohibitive, the possibility of producing



Victor Animatograph Corporation

Schools offer the largest audience for sponsored films.

and selling prints at cost for this market presents interesting possibilities. Steamship companies and resorts can especially profit by such a technique. A large percentage of the people who visit Bermuda, for example, take home motion pictures of their trip. The average amateur's lack of photographic skill makes it unlikely that truly representative pictures of these islands will be obtained. Most footage will be nothing more than animated snapshots of friends. If, for roughly the cost of raw film stock, tourists could buy a reel of outstanding scenic material to accompany their own footage, a valuable selling job would be accomplished.

The school classrooms of America offer the national advertiser a vast field for showing films. Classroom usage of educational films to date is small in comparison with what may be expected. There were approximately 25,000 16-mm sound projectors in American schools in 1946; estimates for 1950 exceed 100,000. Although many of the films that will be used in tomorrow's classrooms will be especially produced by educational organizations and sold to schools, it has been

amply proved that sponsored advertising films are gladly accepted by schools and colleges if they have sound educational value and if the advertising is presented in moderation. Many university film libraries which serve schools in their states and in surrounding territory contain a large percentage of sponsored films that they have obtained without charge from business organizations. These films show how steel is made, what makes gasoline engines work, how freight trains are assembled—in fact, the chief criterion for school acceptance is whether or not the material presents an important phase of life in an interesting, informative, and honest way.

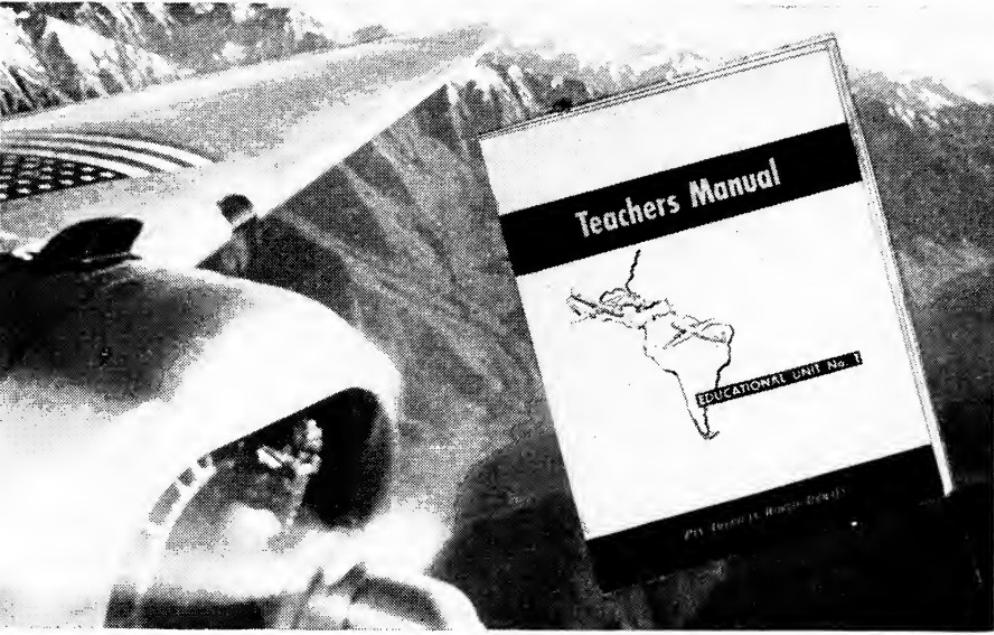
There are two types of school film usage: the auditorium and the classroom. Auditorium films should appeal to children of all ages and can be as much as an hour in length if the material is of an interesting nature. Classroom films, on the other hand, should not exceed 20 minutes in length. In fact those which run only 10 minutes are more acceptable. Classroom films should be specifically designed to fit the curriculum. It is important that competent educational authority be retained to advise on a film's content and manner of presentation; otherwise, concepts from various grade levels may be mixed, and the assumed knowledge necessary to understand the film may make it useless in the grades where it should properly be used.

To fulfill modern curriculum needs, films must be child-centered. Many motion-picture producers and most businessmen have little idea what this means. In fact, general adult opinion on the value of a teaching film for school use, especially in the elementary grades, has little validity. Furthermore, the opinion of many teachers cannot be trusted. Unfortunately, owing to the low pay scale of teachers, there are many incompetents among them. Finding competent

advisers from the teaching profession who understand the audio-visual approach is therefore not an easy job. One method is to select those who write textbooks or contribute to the educational press. A number of visual specialists who supervise the audio-visual programs in various school systems are also available as consultants. Their obvious asset is a knowledge of both general educational and visual educational problems. When you find good consultants, do not just use their names to add academic prestige to the film. Give them a guiding hand, and pay them a large enough retainer to enable them to devote sufficient time to the production.

An intelligent approach to educational-film production was used for the recent Junket motion picture "Magic in the Kitchen." This film is specially designed for use in school home-economic courses. Through a mail survey, fortified by local personal calls on outstanding teachers, it was determined at which grade level the preparation of desserts was taught and how the subject was approached. After a preliminary script was written, it was checked by students and teachers in several schools to make certain that the film was both interesting and educationally sound. The film was given added pulling power by an approach to the subject that sells the students on the value of home-economics courses.

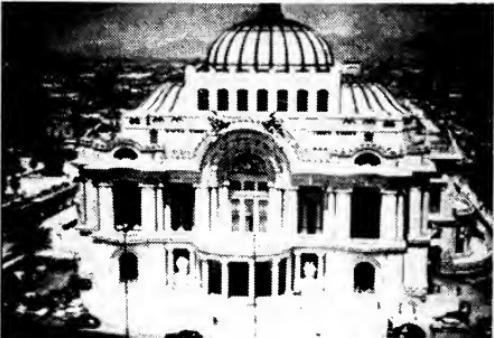
Since there are over 150,000 slidefilm projectors in use in schools, production of classroom films to fit these projectors presents an opportunity. A good slidefilm can be produced for less than half the cost of a motion picture on the same subject, and prints cost only about one-thirty-second as much. It is, therefore, possible for industry to gain wide coverage in this field for little cost. However, if the films are to be put to repeated use, the production technique and the educational content of the films must be of high quality.



Pan American World Airways provided an educational kit to selected schools which contains a Kodachrome motion picture, "Wings over Latin America," a slidefilm, "Our Pan American Neighbors," maps, still photographs, booklets, and a teacher's manual.



**OUR
PAN AMERICAN
NEIGHBORS**





Steve Hannigan.

Newsreels are a valuable publicity medium. Stunts and contests involving beautiful girls are the best means of obtaining such free screen time. Atlantic City and Miami Beach obtain a great deal of free advertising in this way.

Other than in schools there are few slidefilm projectors in use by the organized groups that screen nontheatrical motion pictures. Therefore the use of slidefilms for general promotional purposes is rare. The only use of such films worth mentioning is for "selling by training." Some industrial organizations are equipped with slidefilm projectors for training their employees, and films can sometimes be designed to serve these groups and at the same time do a selling job for their sponsor.

The regular theatrical newsreel occasionally offers the alert public-relations manager an opportunity to gain wide publicity at little cost. This medium for exploitation is one of the toughest to crack; for, unlike other publicity mediums which use a great amount of material, the newsreel screens carry only a few stories each week. Publicity on the newsreel screen generally comes as a windfall when an important event throws an organization into the limelight. Once in a great while newsreel companies can be induced to send camera crews to cover activities that are called to their attention. Fashion shows, swimming meets, and other types of activity presenting beautiful girls are most used by newsreels. Atlantic City's "Miss America Contest" is the outstanding example of such publicity. If newsreel crews cannot be induced to cover an event, it is often possible to have a commercial producer take motion pictures on assignment. The finished footage is then presented for consideration and possible acceptance.

It is a well-known fact that Hollywood's motion pictures have been of tremendous value to America's businessmen in a strictly "selling" job. Actually containing no conscious selling propaganda, Hollywood motion pictures have helped the businessmen of this country reap vast profits. The realization of this potency in selling is perhaps the basic reason why so many businesses make their own films, with an announced purpose of selling a particular product. Some of these sales films have approached the Hollywood-type budget; some have been produced on a shoestring. It is only through these specially produced nontheatrical films that direct "buy this" and "buy now" messages can be included. However, good films are no less valuable and entertaining because they contain an unconcealed mention of their purpose.

A direct tie-up with Hollywood films is obtained through



Alexander Film Company.

Composite print showing sample frame from a typical stock motion-picture short available for theater advertising.

the use of the short-length theater-screen advertising films. These "talkie trailers," distributed in lengths not exceeding $1\frac{1}{3}$ minutes, are shown between features at regularly established rates in approximately two-thirds of America's motion-picture theaters. Organizations specializing in such distribution can quote prices based on average weekly theater attendance. This method of advertising therefore gives you exactly what you pay for, with the advantage over newspaper, magazine, and radio advertising of 100 per cent visibility. A 26-week color-film campaign can be released in one theater at a cost usually below the engraving charge for plates for one four-color printed advertisement.

Film advertising shorts are usually produced by producer-distributors specializing in this work, but they can also be produced by the regular nontheatrical or theatrical producers. They are 50, 60, 80, 90, or 120 ft in length and are all produced in the 35-mm size; 90-ft 35-mm film provides 1 minute of screen time.

Stock "talkie trailers" requiring only the addition of a local dealer's name are often used. Alexander Film Company of Colorado Springs maintains a stock library of color and black-and-white advertising film playlets covering 51 business lines. Under the bakery category there are, for example, 247 films available. A typical subject in the general bakery field presents its message as follows:

A neighborhood ball game is in progress in which a boy is pitching to grandpop. Then a couple of children are seen in the back yard as mother comes out with a plate of bakery treats. Next is a pan of bread or rolls, cake and doughnuts, and the last scene shows a cake being cut. The voice message is: "Here is a favorite pastime of young and old throughout America, and here's another great favorite, fresh, delicious baked goods made from the finest ingredients available and baked by experienced hands, saving you time and money and constantly bringing a delightful addition to every meal."

National advertisers produce playlets that specifically dramatize their products. Local dealers' signatures are attached to these trailers giving the appearance of specially produced films for each dealer. The cost of showing the films in theaters is usually shared on a fifty-fifty basis by manufacturer and dealer, with the representative of the film-advertising company responsible for selling the local dealer on the idea.

Screen advertising films when released on a nationwide basis are known as "minute movies" and are distributed through the General Screen Advertising organization which maintains offices in New York and Chicago. Screen space is sold on a per thousand audience basis with circulation standards approaching those of the national magazines.

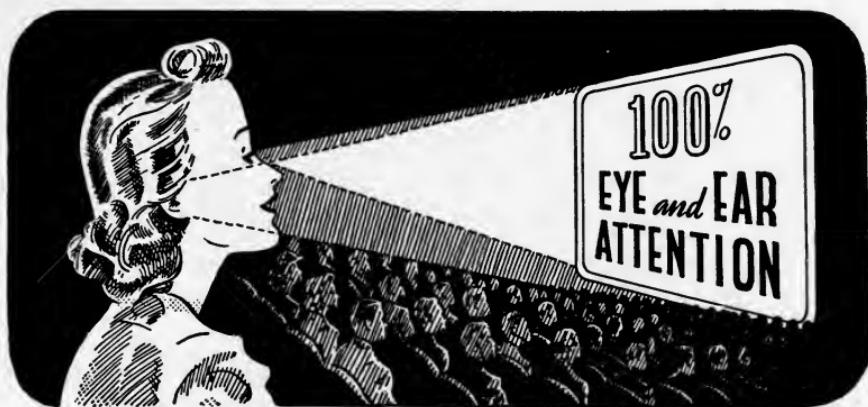
Minute-movies circulation costs about one-third of a cent per head, and a weekly audience of 45 million people can be obtained. The advertising can be closely related to market opportunities. Advertisers can select the exact neighborhoods that they wish to cover. Although minute movies have become a major medium for some advertisers, they are most often used for special promotions. They offer an effective

WHAT MAKES PEOPLE BUY ?

Seeing	87%	
Hearing	7%	
Smelling	3.5%	
Touching	1.5%	
Tasting	1%	

Report from Dartnell

stimulant, because a minute-movie campaign makes a deep penetration of a market. A year-round campaign need not be used in one area. It is more effective and more economical



Alexander Film Company.

to move a series of films around the country where special sales emphasis is needed. Minute movies are popular with retail dealers who like highly localized promotions. They know their neighborhood theaters and respond with interested cooperation to this type of advertising.

There are significant case histories, but minute-movie advertising has suffered because many advertisers will not permit publicity about their success. However, some facts are available. A grocery company, for example, found that their product needed a demonstration to overcome misuse. Three-minute movies screened in theaters raised sales volumes an average of 35 per cent. The records of a leading oil company show that in three prewar years there was a 55 per cent increase in business in towns where minute movies were used as against a 28 per cent increase in towns where they were not used. After a drug-product campaign, a mail survey of 6,500 druggists was made. Of the 44 per cent who

answered, 38 per cent had seen one or more of the films and 88 per cent believed that films had influenced sales. Alka-Seltzer, one of the pioneers in the minute-movie field, found in one survey that this medium cost 57 cents per dollar of increased sales against \$2.69 for one radio program and \$1.63 for another.

Minute movies and other similar types of screen advertising offer many advantages, including some that are unique, not only over radio and printed matter, but over other forms of film. They may be summarized as follows:

1. Definite circulation is bought.
2. The audience is visible and countable.
3. Insertions are checked.
4. Screen time is usually limited to three products a week.
5. There is no direct competition.
6. Outlets are highly selective.
7. Visibility of 100 per cent is obtained.
8. Sight, sound, and sequence sell the product.
9. Sales results can be measured.
10. Audience reaction can be measured.

As a merchandising tool a campaign can be supported by

1. Screening movies (16-mm prints) for advertising sales staffs.
2. Screening movies for jobbers and their salesmen.
3. Informing trade when movies will appear in local theaters.
4. Providing important dealers with theater passes.
5. Using points of sales displays keyed to minute movies.

There is ignorance among many otherwise well-informed advertising men about screen advertising, since the large metropolitan theaters that they attend often do not run such films. Many executives also have the idea that audiences resent advertising on the entertainment screen. Sales figures should offset this fear, and there are reliable surveys showing that a great majority of people actually enjoy the com-

mercials. Since high production quality and good taste are required before a film will be accepted for distribution by responsible distributors, the danger of theater-audience objection is largely avoided. The idle saying that "theater audiences resent advertising on their entertainment screen" should not keep businessmen from utilizing what is claimed to be the greatest single potential outlet for reaching a mass consumer audience.

New types of sales film, both in the theater advertising and in general nontheatrical fields, are constantly being devised. The fields of production and utilization of such films will always be fertile ones for creative workers, for the field is not limited by sound, motion, or color. It should never be forgotten, however, that a film striving to stimulate mass sales can be useful only in direct proportion to the number of people who see it. The ways in which sales films reach their audience are discussed in detail in the next chapter, but the whole problem of distribution is so inseparably tied up with development and production of sales films that it must be considered from the very first and kept constantly in mind throughout production.

Continuous filmstrip projectors are valuable for window and counter displays.





"Red Wagon," the 45-minute historical romance tracing the development of Swift and Company, is one of the most ambitious motion pictures ever made on 16-mm film.

Chapter 6

FILM DISTRIBUTION TO A MASS MARKET

BUSINESS FILMS that are designed to take an advertising or public-relations message to a large consumer audience rely for their distribution largely on organized groups equipped with sound projectors. Projection facilities are, however, sometimes supplied to serve large gatherings. Some promotional films of a reel or more in length are also shown in neighborhood motion-picture theaters. Regardless of the audience and the manner in which it is reached, the cost of providing prints and arranging for showings of a film will entail considerable expense. Although the cost can easily be justified by comparison with other advertising media, it should not be overlooked, for it may involve an even larger expenditure than the complete cost of producing a film.

America's consumer audience for nontheatrical motion pictures is composed largely of the following groups:

IN EDUCATION

- Elementary schools
- Junior high schools
- Senior high schools
- Colleges
- Universities
- Seminaries
- Vocational schools
- Private schools
- Parochial schools
- School clubs
- University clubs
- Fraternities
- Parent-teachers' associations

IN INDUSTRY

- Labor organizations
- Trade organizations
- Athletic associations
- Technical societies
- Employee clubs
- Foremen groups
- Training classes
- Conference groups
- Lunch-hour showings
- Dealer meetings
- Sales meetings
- Conventions
- Stores

IN THE COMMUNITY

Elks	Museums
Knights of Columbus	Hospitals
Kiwanis	YMCA
Exchange	YWCA
Lions	YMHA
Masons	Boy Scouts
Rotary	Girl Scouts
Shriners	
Lodges	IN CHURCHES
Women's clubs	Sunday schools
Garden clubs	Evening services
Fishing clubs	Parish meetings
Hunting clubs	Women's Auxiliaries
Athletic clubs	Men's clubs
Junior Leagues	Young people's groups
4H clubs	Extension work
Political clubs	
Veterans' organizations	OTHER GROUPS
Civic groups	Armed forces
Farm Bureaus	National Guard
Chambers of Commerce	Veterans' hospitals
Community Centers	County fairs
Fire Departments	Expositions
Libraries	Summer camps
	Resorts
	On ships

To reach these groups an organization sponsoring a film may have staff workers take care of the details of publicity, schedule showings, and handle films, or the complete work of distribution may be assigned to one of the national organizations specializing in such work. Since most large campaigns are handled by these distributors, their service will be explained first.

The national nontheatrical-film-distributing services* have branch offices, often called exchanges, strategically located to service the entire continental United States conveniently.

* See Appendix.

For films of general appeal these distributors can reach an audience of about 5 million people. Since practically all films are requested by the group showing them, the audience that a film can reach is governed largely by its content. While plans of distribution and the manner of charging for services vary in minor details, commercial film distributors provide services in which they serve the sponsor as follows:

1. Prepare and circulate broadsides and other promotional material to secure bookings for films. Showings can be restricted by either geographical areas or type of audience.
2. Schedule showings of films to provide for maximum use of prints available. Advance notice of bookings are made to film sponsor permitting a local dealer or other representative to capitalize on film showing.
3. Submit a monthly report of showings and attendance.
4. Ship print for screening; return shipping charges are usually paid by group screening film. The distributor pays transportation according to the wishes of sponsor, that is, both to and from screening, to the screening only, or provides prints only where transportation charges both ways are paid by the group showing the film.
5. See that each print is returned promptly together with a report on the size and nature of its audience.
6. Examine prints and prepare them for future showings. Prints are cleaned and minor repairs are made.
7. Store prints in a safe and suitable place insured against fire and theft.

The cost of the foregoing distribution service either is charged for on the basis of a guaranteed general circulation per print per year or is charged for on a per showing or a per capita audience basis. The cost for such service varies from a minimum of about six-tenths of a cent per person for school audiences and one and two-tenths cents for adult groups up to 5 cents or more per person when covering selected groups on a small scale. The average cost of general



The National Live Stock and Meat Board film, "Meat and Romance," was distributed to an audience of over 2 million in a period of 7 months.

nontheatrical distribution is approximately 1 cent per person.

In figuring the cost of distribution, no matter what method is used, it is important not to overlook the cost of prints that must be provided. In some instances, when color prints are used, the print cost exceeds all other distribution costs. The life of a print, of course, varies with the usage that it receives, but one of the leading industrial film users has found that on the average a print should be taken out of service after 100 showings. If badly scratched and frequently spliced prints are kept in circulation, their life may average several hundred showings. For general showings it will be necessary to keep approximately 80 prints in constant circulation to reach an audience of 1 million people a year.

The use of a distribution service offers certain inherent advantages for the circulation of business films. Commercial-film distributors know from experience where the audiences



ROCKEFELLER CENTER
R. C. A. BUILDING
NEW YORK 20, N.Y.

NY A 1075

ADVANCE BOOKING NOTICE

Name of Picture LIFELINE

Date of Showing Sept.

Person in Charge
Organization
Street Address
City, Zone, State

Tisbury
Vi

A SHOWING



ROCKEFELLER CENTER
R. C. A. BUILDING
NEW YORK 20, N.Y.

NY A 1075

RECORD OF EXHIBITION

Name of Picture LIFELINE OF THE NATION

Date of Showing Sept. 12

Person in Charge
Organization
Street Address
City, Zone, State

Tisbury High School
Vineyard Haven
Mass.

Please return the print and this
record not later than the day
after scheduled date of showing.

Grace Rice, Curator COMMENTS

Page 2

DATE	CITY OR TOWN	ORGANIZATION	BOOKS	Showings	ATTENDANCE	
					ADULT	STUDENT
11/9	N. Easton, Mass	Oliver Ames High School		4	30	550
9/12	Vineyard Haven, Mass	Tisbury High School		3	38	448
11/7	West Springfield, Mass	Edson S. Dunbar		1	78	—
11/13	Worcester, Mass.	Boston & Albany Railroad		1	16	290
11/19	Beebe River, N. H.	Draper Corp.		1	135	5
11/21	Keene, N. H.	Union School Dist.		6	11	290
11/7	Manchester, N. H.	School Dept.		1	8	495
9/17-22	Rochester, N. H.	Rochester Fair Grounds		6	10,000	—
11/7-9	Cladwell, N. J.	Board of Education		2	—	1023
11/13	Gloucester City, N. J.	Gloucester City High Sch.		2	—	600
11/8	Lakewood, N. J.	Jr. Sr. High Sch.		2	4	250
11/16	Madison, N. J.	High School		2	20	15

Nontheatrical distribution organizations provide sponsors of business films with complete records of showings.

are and how to reach them. Since each distributor has certain standards, an audience is ensured against receipt of a poor film which is always a possibility when films are obtained from an unknown producer or sponsor. By advertising a number of films through one mailing, promotional costs are greatly cut. One distributor publishes a catalogue of selected motion pictures and circulates it to 60,000 prospective audiences each year. Distributors' nationwide exchanges save shipping time and reduce shipping expense. This may materially reduce the number of prints required to reach a given audience over the number that would be required if all shipments were handled through an advertiser's home office.

Recent surveys covering over one-third of the available nontheatrical outlets in the 48 states and the District of Columbia, reveal that audiences are comprised of men, women, and children (under eighteen years of age) as follows:

<i>Audience categories</i>	% men	% women	% children
Church and religious groups.....	38	42	20
Parent-teacher's associations.....	17	41	42
Veterans' organizations.....	74	16	10
Men's lodges and clubs.....	75	20	5
Women's clubs.....	18	76	6
School and college groups.....	2	5	93
Miscellaneous showings.....	48	32	20

In studying the above figures it is interesting to note that a mixed audience is indicated for groups that are normally restricted to either men or women. This is a vivid demonstration of the pulling power of the nontheatrical screen—it brings men into women's clubs and women into men's clubs.

ANALYSIS OF AMERICA'S 16-MM SOUND-FILM EXHIBITORS*

<i>State</i>	<i>Colleges</i>	<i>High schools</i>	<i>Grade schools</i>	<i>Church</i>	<i>Clubs</i>	<i>Indus-</i> <i>ties</i>	<i>YMCA</i>	<i>Other organizations</i>	<i>Total</i>
Ala.	26	104	64	26	5	6	3	31	265
Ariz.	8	41	64	10	7	5	4	10	149
Ark.	21	67	61	15	13	7	1	26	211
Calif.	89	566	404	323	87	73	61	166	1678
Colo.	13	80	57	21	12	9	1	30	223
Conn.	21	165	123	61	42	34	19	50	515
D.C.	13	29	7	21	4	8	2	32	116
Del.	5	31	25	12	4	7	2	16	102
Fla.	10	133	40	22	15	15	4	42	281
Ga.	36	101	64	43	14	4	10	33	305
Idaho.	9	65	45	10	6	6	2	5	148
Ill.	77	653	377	312	259	190	66	311	2245
Ind.	31	325	220	119	39	61	21	122	938
Iowa.	33	227	184	62	32	35	12	42	627
Kans.	23	190	102	35	26	12	6	31	425
Ky.	24	143	52	27	8	17	4	27	302
La.	20	118	37	24	4	21	12	33	269
Maine.	13	105	28	17	13	10	6	32	224
Mass.	41	231	108	90	41	42	35	79	667
Md.	22	105	54	30	15	10	11	25	272
Mich.	40	424	315	121	53	72	33	125	1183
Minn.	34	189	121	40	19	34	15	42	494
Miss.	17	54	31	20	12	5	6	28	173
Mo.	41	141	96	43	19	45	11	44	440
Mont.	5	52	72	13	5	5	1	18	171
Neb.	20	71	49	29	20	14	8	30	241
Nev.	2	19	21	7	3	5	...	9	66
N. H.	13	45	9	8	12	6	6	16	115
N. J.	24	265	228	145	55	62	63	114	956
N. M.	11	41	22	6	4	2	2	55	141
N. Y.	111	752	675	393	195	191	95	595	3007
N. C.	34	210	100	47	10	9	17	35	462
N. D.	11	50	29	12	4	102	2	15	225
Ohio.	56	705	439	147	97	104	63	110	1721
Oklta.	30	169	92	30	19	21	5	30	396
Ore.	14	105	74	21	4	5	3	17	243
Pa.	90	636	293	175	91	101	70	153	1608
R. I.	5	45	20	14	2	7	5	15	113
S. C.	18	82	34	7	2	9	6	12	170
S. D.	12	57	41	11	...	6	3	17	147
Tenn.	36	124	45	22	7	13	1	42	290
Tex.	64	312	247	81	35	41	22	81	883
Utah.	8	62	25	7	1	2	1	10	116
Va.	31	212	66	40	14	18	13	32	426
Vt.	16	41	14	12	7	4	2	14	110
Wash.	24	163	134	45	12	18	17	23	436
W. Va.	19	182	51	24	9	17	9	38	349
Wis.	44	274	184	67	41	46	16	69	741
Wyo.	1	24	23	9	2	4	...	8	71
	1366	8995	5665	2785	1400	1538	777	2940	25456
	5 %+	35 %+	22 %	11 %	5½ %	6 %	3 %	11½ %	
	Educational—63 %				Community—37 %				

* This is the 1945 list of outlets available through the facilities of Association Films. The great number of 16-mm projectors that are being sold and thus increasing outlets makes this a very conservative list of potential exhibitors for a film.

The distribution of nontheatrical films where it is necessary to provide projector and operator is so costly that it has not proved commercially practical for general showings on a large scale. Such showings are normally arranged only for special groups that it is imperative to reach. Generally a sponsor's representative personally arranges for such showings and often provides a company projector. When it is not practical to take a projector from city to city, projector and operator may be hired locally in most cities. Film distributors can either supply such service directly or provide it through their representatives.

Films of general interest with the advertising subtly worked into their story can also be shown in many theatrical motion-picture houses. The chief requirement for this type of distribution is that a film have real audience appeal. This does not mean that it must be a comedy or a romance, but it must contain information of an educational or human-interest nature sufficient to interest the general public. There are several organizations that specialize in handling the distribution of such films for industry. A one-reel subject can be booked in a minimum of 1,000 theaters at small cost for an average run of $2\frac{1}{2}$ days to an audience composed on an average of women 42 per cent, men 38 per cent, and children 30 per cent. For such showings the cost of providing 35-mm prints must be taken into consideration. The number of prints required will depend on the speed with which it is desired to reach the audience. The distribution fee covers showing the film with each change of program for the run of the feature that it accompanies. In a theater where the feature is run four times a day for a period of a week, 28 showings of a sponsor's film will be made. Such booking cannot usually be obtained in the large first-run theaters, but a great number of small neighborhood theaters use such films and

Time—The Servant of Man



*OVERVIEW:

The story of man's effort to measure and record time forms one of the most absorbing and interesting chapters of his long struggle for control of his environment. Accordingly, this story is an excellent springboard into a wide range of study and activities in a well-integrated school curriculum.

Many specific learnings listed as goals in such courses as: Social Studies, General Science, Geography, History, and Mathematics will emerge directly from the study.

The appealing subject and rich educational qualities place this picture high in the scale of Assembly programs.

AREAS OF USE:

Assembly, Club

To appreciate that accurate, dependable means of recording and measuring time have been acquired by man only after centuries of struggle and experimentation; that time, space, the universe, and man are inseparable.

Social Studies, General Science, Physics

To be able to define time; to trace the principal events in the long history of time; to learn the relation between astronomy and time-recording devices; to appreciate the extent to which man depends upon accurate time-keeping devices.

SYNOPSIS:

Time is universal—ever present. But what is it? How can it be measured? Spring—Summer—Fall—Winter—the changing, recurring seasons suggest the first idea of time; suggest a way of measuring it. Thereafter, the film continues tracing the progress in the measurement of time down through the ages.

Material for visualizing concepts include:

1. General Science

It traces the progress in the measurement of time from the sundials of the ancients to the present day. Early devices include water clocks, shadow clocks, sun dials, candle clocks, hour glasses, and tower clocks.

Animated drawings portray the relationship of astronomy to the measurement of time; the cause of night and day; the difference between the solar and sidereal day; the laws of the pendulum.

Finally it shows how modern astronomical observatories control our modern time pieces to schedule accurately our daily lives.

2. Social Studies

The film shows our indebtedness to the Ancients, especially the Egyptians and to the men of the Renaissance. It treats time in relation to a series of happenings—a "succession of events"—which will give it meaning. The importance of measuring time and its service to man is presented in the closing scenes.

*A Teacher's Manual, containing the script, illustrations, tests, and suggestions for the film's use, is furnished with each booking of the film. The manual need not be returned.

Picture courtesy: Elgin National Watch Company

Length 20 Minutes

Modern Talking Picture Service.

Page from a catalogue describing free educational films.

thus save the cost of renting a short subject. However, the audience has paid admission and will not react favorably to either the theater or the sponsor if the advertising in a sponsored film is too blatant.

Theatrical distribution is one of the most economical forms of motion-picture distribution. Unfortunately, only a few film subjects lend themselves to such use. When such distribution is possible, two versions of a film are usually made, a longer one for nontheatrical use and one approximately 10 minutes in length for theatrical use. Full-length feature

THEATRICAL SHOW REPORT	
Picture Title.....	
Play Dates.....	
Theatre.....	
Address.....	
City.....	State.....
Number of Times Shown.....	Total Estimated Attendance.....
Audience Reaction.....	
Film Shipped to..... Date.....	
Signed..... Title.....	
MTPS-57B-17H48B	

Theater managers return this filled-in form to Modern Talking Picture Service after the showing of a sponsored film.

films have, on several occasions, been used for sponsored theatrical distribution. Just before the war the five-reel Westinghouse film, "The Middleton Family at the New York World's Fair," produced in Technicolor, was shown in 2,500 regular theaters to an audience in excess of 2,500,000 people. In many neighborhood theaters it received feature billing.

Another method of obtaining distribution for business films is to have local dealers arrange for showings in their



F. C. Huyck & So

"Paper—Pacemaker of Progress" reenacts the development of the paper industry against an authentic background.

areas. Prints can be either sent direct from the manufacturer to the group showing the film or delivered through the dealer.

When a dealer can arrange to show films at his place of business, this will serve to bring potential customers into the office. After the film showing, interest can be further heightened by demonstrations with the actual product. In this way many otherwise impossible sales will be made. Although the advantages of such dealer-sponsored showings are readily apparent, they present many difficulties, especially in large operations where the cooperation of jobbers is required. Special men are often needed to explain, sell, and supervise such activity. If this is not feasible, salesmen can be trained to do the job. Once they understand the strong sales stimulus that a well-conceived motion-picture program can provide, they will do an outstanding job in promoting film utilization.

The greater number of advertising films are distributed in a limited way by the organizations sponsoring them. The me-

chanics of such distribution runs all the way from arranging showings in a few branch offices to a nationwide activity similar to that of the United States Steel Corporation which has obtained showings for its films before approximately 60 million since the inception of its film program some 35 years ago. The list of conditions under which this organization loans its films gives such a clear insight into many of the problems of industrial-film-library operation that it will be well to study it in detail. It is reproduced for that purpose on the opposite page.

The direct handling of film distribution by an industrial organization is basically a very simple procedure. Arrangements for showings are made by company representatives or through publicity or advertising. Films are then shipped in time for each showing. Upon their return, they are examined and prepared for shipping once again. Simple as this procedure is, there are numerous details that must be constantly watched. Unless the procedure is systematized and an experienced employee placed in charge of the operation, it can be a source of endless trouble to the executive. When an operation is not extensive enough to warrant the services of a full-time employee, it is often more satisfactory to have the film handled and shipped by a film service organization. Although the larger industrial film distributors do not cater to small operations, there are usually individuals or small organizations glad to handle such details. In fact, many producers provide such service for their clients; the client merely informs the producer when showings are scheduled. The producer takes charge of all details of film handling.

When films are designed for use in school classrooms, it is sometimes profitable to deposit prints directly in school audio-visual libraries, provided assurance can be obtained that they will be put to repeated use. The New York Central

Conditions under Which Films Are Loaned

1. Exhibitors are responsible for film damage.
2. No rental charge is made.
3. A 16-mm sound print must be projected only on 16-mm sound projectors which have but one row of sprocket teeth. Projection on a silent machine will ruin the film.
4. Be sure the gate and other parts of the projector are clean and free of excess oil. Do not allow film to touch a dusty surface. This is not only detrimental to the film, but introduces dirt to the projector parts. Be certain the projector is in proper adjustment.
5. Films are to be projected as received. Leaders and trailers must not be removed for joining to other reels of this subject or to other subjects. Do not punch the film or add any other permanent markings.
6. Thread the picture on the plain leader, not on the title. Turn the mechanism by hand to be certain sprocket teeth are properly engaged. Then after projecting a few feet of the leader, stop the machine and examine the film. Never run into the opening title without examining projected leader for damage.
7. When rewinding between shows do not tighten or bind film on the reel. This causes serious scratches and other marks. Running the film through a cloth or the fingers is also a common source of scratched prints and should be avoided.
8. If splicing is necessary, it should be accomplished in an expert manner and only with suitable film cement on a splicer designed for the particular type of film.
9. Ordinarily, films should not be rewound after last showing. Returned reels should be of the same manufacture, type, and size, and in the same condition as reels sent. If such reels are not available, rewind film and return on original reels.
10. Damaged prints disrupt schedules and may cause disappointment to other borrowers. Your cooperation in keeping prints in first-class condition will be appreciated.
11. Films must be reshipped under cover of the label enclosed in the shipping case immediately after showing.
If it is desired to hold film beyond reshipping date specified, permission must be obtained in advance of such date.
Return shipments by parcel post must be marked special delivery. Films are ordinarily shipped express prepaid. On request they are sent parcel post special delivery.
12. Report form is to be completed and returned after the showing.

Railroad System deposits its prints with city school systems, state universities, film libraries, teachers colleges, public libraries, and a few commercial-film rental libraries, all of which agree to circulate the films without cost to the railroad. The university film libraries are the chief depositories, for they are set up to serve the film needs of their states and serve schools and colleges on a nonprofit basis. In fact, the majority of educational films used in American schools today are obtained from such state libraries. The New York Central receives periodical reports on the circulation of their films. These reports indicate that each film plays to an average audience of more than 500 persons of all ages each month. This distribution is obtained without charge. The only expense is supplying the prints to the libraries. Seventy-five prints of each of three educational subjects are kept in constant circulation, giving a total yearly audience circulation of 1,250,000.

Some films that have value in adult education can be distributed through the cooperation of governmental agencies. The U.S. Department of State often accepts commercial films for distribution in other countries. The Bureau of Mines of the Department of the Interior has for more than a quarter of century cooperated with industry in the production and distribution of films to disseminate knowledge of the mining, metallurgical, petroleum, and other mineral industries. These films promote the conservation of resources and encourage safety over a broad segment of American life.

The Bureau of Mines motion-picture program is unique in that the entire cost of film production is paid for by the mineral and related industries. The Federal government provides the staff and underwrites the expense of circulating the films and keeping them in repair. Regular exhibitors on the circulation list number more than 8,000. There are also many



Eastman Kodak Company

Films can present new fashions in appropriate settings.

occasional borrowers. Since 1916, cooperating industrial concerns have spent more than \$2,250,000 for the production of educational films circulated by the Bureau. Films are free of direct advertising material, and the cooperating industrial name is acknowledged only at the beginning and end of each picture. The 10,000 prints in the Bureau's library now reach an audience of about 9 million people a year.

The capable public-relations executive can devise all manner of promotional activities centered around a film. Special groups have been invited to preview important aviation films in airplanes while in flight. Elaborate previews are often staged in connection with banquets and cocktail parties. Sometimes these are the occasion for seeing a film, and at other times films are especially produced for the

occasion. Numerous types of projection trucks have been designed to take films to an audience rather than assembling an audience to witness a film. Often in such operations, a commercial film is used in conjunction with entertainment films to provide greater audience appeal. The high portability and ready adaptability of the 16-mm projector makes the distribution of motion pictures a field almost as broad as life itself.

The distribution of slidefilms closely parallels that of motion pictures, for these two mediums of audio-visual communication are often used interchangeably. The chief difference in distribution methods is that the large commercial distributors do not, as a general rule, handle slidefilms. The Society for Visual Education, a company that for many years has been the leading manufacturers of slidefilm projection equipment, is in an excellent position to be of service in distributing sponsored silent slidefilms because of their knowledge of where slidefilm-projection equipment is located. However, the films that they handle are generally of an educational type, since SVE distribution is largely to schools. They distribute many of their own productions and have served organizations such as the Radio Corporation of America, United Airlines, and the National Livestock and Meat Board.

The distribution of slidefilms does not present such complicated film-handling problems as the motion picture. Prints are so inexpensive that they are usually circulated free with no thought of having them returned. In the case of sound slidefilms the record and film are sometimes sent direct from one user to another. This is a simple shipping problem, since the film and record are easily handled by any commercial organization. As few school or club audiences are equipped to project sound slidefilms, the distribution of such films is

usually confined to groups specifically known to a sponsor and best serviced directly.

In obtaining an audience for slidefilms and motion pictures a single letter-size sheet printed on both sides is generally used. These can be easily folded for mailing. Colorful stickers to attach to company letterheads can serve to announce an important film to dealers and clients of a manufacturer.



Typical pamphlets used to promote nontheatrical films.

Advertising in the sponsor's trade papers is another frequently used source of promotion. To reach a general audience such advertisements can also be run in the various film magazines and school journals. Some organizations merely content themselves with obtaining a free listing of their films in the film source catalogues which are listed in the Appendix of this book.

The preparation of supplementary printed matter to accompany a film is an important means of increasing its

effectiveness. Such promotion runs all the way from the use of a mimeographed sheet to elaborately produced full-color booklets. Although films can be the most forceful means of selling, the human memory is often short-lived and something tangible for the audience to take from the showing has proved its worth as a selling aid. Through the use of such pamphlets additional material not practical to show in the film can be presented.



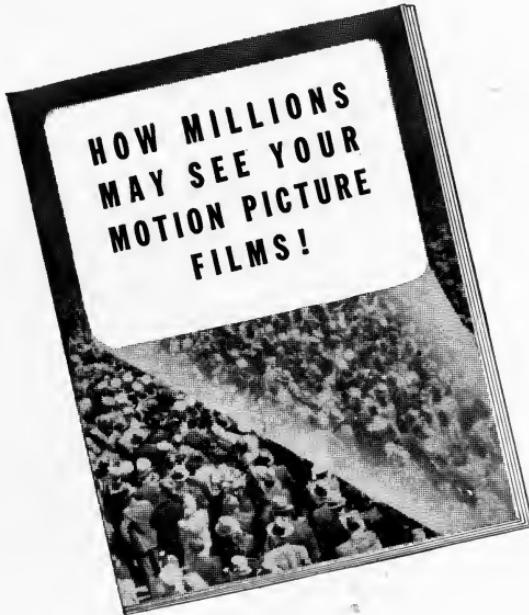
Examples of printed matter distributed with films.

Printed guides can be designed to assist in organizing and running a meeting built around a film. They may include all manner of supplementary activities to increase the value of the film. Clever merchandising tie-ins and sales hints can be suggested. The use of film guides with educational films is widespread, especially where a film is designed to fulfill specific curriculum needs. Supplementary activities are sug-

gested, and points for discussion outlined. The inclusion of the complete script of the film aids the teacher in referring to specific points. Such film guides are also used to advertise films, making it unnecessary to print two different promotional pieces.

The problems of distribution are so varied that in actual practice it will be found necessary to predetermine carefully the audience for each production. Films that are intended

Distribution organizations such as Association Films print booklets that describe their services and outline the potential audience for a film.



for general circulation often have to be limited in distribution because of the costs involved. In such cases it is necessary to choose audiences that are of the greatest value to the sponsor. The great majority of films are designed to carry a message to a specific group. It is, therefore, up to the sponsor to point out the group. The producer and commercial film distributor can provide the mechanics for reaching that particular group.

SELECTING A PRODUCER

EVEN THOSE long experienced in the use of motion pictures find the selection of a producer for a particular business film a difficult problem. Such a decision for the uninitiated is apt to be pure guesswork or blind faith. There are, however, certain basic procedures that, if followed in selecting a producer, will enable the astute businessman to make a wise decision—one in which he will feel secure even though it cannot be measured in tangible terms. Before we embark on the section of this book dealing with the various phases of production, let us take an overview of the entire production process. Later chapters will discuss in detail the various elements of film construction, but here is a short outline of the typical way in which an idea for a narration-type film is developed into a screen reality.

First, someone observes a situation where a film can perform an important communication job for industry. The purpose and means of distribution for the film are agreed on, and a contract for production is signed. The script writer and sometimes the director confer with the sponsor to decide on the specific message that the film is to carry. Research is carried on by interviewing subject-matter experts and by referring to sources of printed information. One or more treatments are suggested for the film, and finally a decision is made on the general approach. The script writer, consulting when necessary with the other members of the production staff, produces a script completely describing the picture and sound components of the film. This script is revised in accordance with the sponsor's wishes and approved for production. Any changes after this point are

usually charged for over and above the contract price. The foregoing preparations for production may take anywhere from a few days to many months, depending on the nature of the material, the ability of the writer, and the clarity of the film's purpose in the sponsor's mind.

After the script is approved, it is turned over to the production manager who breaks it down for shooting. In conjunction with the director he decides on locations, arranges for set construction, selects talent, and schedules production. The director supervises the photography and works closely with the art director in laying out animation and titles. After the film has been developed and printed by the laboratory, the editor assembles it in accordance with the script. It is projected in silent form and worked over until satisfactory. The script is read while the film is being projected to check on both picture and words to determine if last-minute changes are necessary. When satisfactory, a voice track is recorded on film by a narrator who reads the script in synchronization with the picture as it is being projected. After developing and printing, the sound track is matched with the picture film. To determine how the narration and picture will sound and look together, they are run in synchronization on special projectors giving the same result as if they were both printed on one film. This is called "interlock" showing. The sound and the picture can be lengthened or shortened to change their juxtaposition. The picture is cut and spliced between scenes; the narration between sentences. Music and sound effects are selected to accompany picture and narration. Such sound tracks are assembled on separate reels and so arranged and separated by unmodulated film that when the picture and narration are run in conjunction with them, the proper sounds will occur at the desired time. The sound tracks are run in syn-

chronization before separate sound heads which reproduce voice, music, and effects so that they can all be re-recorded on one single roll of film. After the film that combines all sounds is developed, the sound track is printed along the side of a roll of film. The picture is printed in the center of the same roll of film. After development the result is a combined print—the finished film product.

The actual writing, photographing, recording, and assembly of an industrial motion picture are usually performed by one of the many nontheatrical producing organizations located throughout the United States. New York, Chicago, Detroit, and Hollywood are the centers of commercial- and educational-film activity. Producers who are located in other cities usually come to one of these centers for many of the technical facilities required for film production. Some large business firms, such as Aetna Insurance and the Caterpillar Tractor Company, make their own films and call on producers only for specialized services.

The initial idea for a commercial film may originate with a producer who suggests it to a business organization and sells his services with it. This is a common method of inducing a company to sponsor its first film. Once the executives of a company understand the film method of communication, they are more apt to decide when films should be used and then select a producer to make the film. For films of a general promotional nature, there is a growing tendency to have advertising agencies supervise production, since films for such use are but one part of an over-all advertising program. The decision as to whether or not an agency should supervise production should be made in the light of the ability of the particular agency to provide constructive direction and advice. If the agency has staff members experienced in film production and distribution, they may well



Audio Productions

Motion-picture production requires the cooperative endeavor of many specialists. Here a spark plug is being photographed with infinite care.

be of help. If they are not experienced, they will only be another cog to cause more friction and more expense.

When selecting a producer the outstanding problem is often the difficulty in obtaining prices that can be compared. Most commercial products and services are standardized to the extent that comparative prices can be obtained and used as a basis for awarding a contract. There are, however, so many variables in motion-picture production that such a purchasing technique is impractical. On a given one-reel subject estimates might vary from as little as a \$1,000 to as high as \$15,000, yet each producer may be quoting a price that provides for only a fair margin of profit. The chief differences in value between the extremes in such a series of proposals are relatively easy to ascertain. One producer is probably an individual who will do the entire job himself, shooting the

film in some home or office and enlisting amateur talent to help where required. The higher proposal would represent the use of the best facilities in the business, with specialists in charge of each subdivision of production, the construction of special sets, and the employment of expensive professional talent. In film production as in most fields of endeavor there is the superlative and the opposite.

However, judging the respective merits of bids that vary only by 10 or 15 per cent presents an entirely different problem. In fact, so many variables enter into consideration that an individual who can competently make a decision in such a case, merely from a study of facts and figures, is probably capable of being his own producer. How, then, should a business executive choose a producer? In the first place, the problem should not be turned over to a purchasing department, for a film cannot be judged by general purchasing rules. No two films are the same. Each is a tailor-made product of new design. There are 24 new and different pictures for each second of screen time. Music and voice require expert direction. Film production is, therefore, not a business endeavor that can be organized to function like any other.

The difference between producers lies in the personal capabilities of their creative staffs, since film production equipment is highly standardized. Thus, an organization with the same corporate structure, the same studio, the same office help, the same sales staff, yes, even the same samples can offer an entirely different potential service, for better or worse, if the script writer, director, and photographer have been changed. This accounts for the varying quality of films that issue from the large producers. It is not the producer, it is the creative group assigned to a film that counts! Therefore, in selecting a producer arrange a meeting with as many



In producing a slidefilm the National Safety Council had the guard rail drawn in on this photograph. On seeing the film the shop manager immediately realized the need for the rail and had one installed.

of his production people as possible. Establish without doubt that these men are actually going to work on your film; see examples of their work (not films with the producer's name which may have been produced by an entirely different group); and judge the smoothness of script, perfection of camera technique, and the success with which the message is put across. Investigate their background and experience and the type of pictures on which they have worked. Decide if their talents are applicable to your particular problem, and in general judge them much as you would an applicant for a position. Apply personnel rather than purchasing technique. It is especially important that you really like the people with whom you plan to work. A lot of give and take is required in film production. It is an even more highly personalized activity than advertising, although the selection

of a producer and the selection of an advertising agency have much in common.

Although many producers like to claim that they can produce anything from an inexpensive slidefilm to another "Gone with the Wind," this is wishful thinking on their part. There are producers who specialize in animation, in slidefilms, in color photography, in 16-mm production, in location photography, in medical films, in educational films, and in training films and other producers who by long experience are best qualified for the dramatic-dialogue type of production, sales training films, and other special applications of the film medium. Although it is probably true that most producers can provide the technical service necessary for any type production, experience in a particular field cannot but make for more efficiency when working within this field. The training of script writers is especially important—an engineering graduate turned script writer would naturally be more suited for an engineering film than a girl writer with a fashion-merchandising background. If, for example, you want a good baby picture produced, find a producer who has worked with children and do not be overimpressed with films of dancing girls or industrial plants, no matter how outstanding. There is no substitute for experience.

It is not always easy to determine if a film that a producer shows you is really a good one. Opinions vary greatly on what constitutes a good film. In order to standardize film appraisal somewhat the U.S. Navy developed a special form which, with certain modifications to suit it better to industrial use, is reproduced on the opposite page. The use of such a form when it is necessary to get group opinion on a film has obvious advantages. If some such system is not used, it will be found that really outstanding films are considered by some to be terrible merely because on a minor point the producer and the "expert" differ in opinion.

APPRAISAL OF FILM

DIRECTIONS: In column A each subhead is assigned a maximum weight. In column B, write in that part of subhead weight to which you think this film is entitled. For example: subhead A, Section I, is given 30% of the section total of 100%. If the purpose is not demonstrated with maximum clarity it should be scored at less than 30% (half clear would be 15%). By adding column B, and dividing the total by the number of sections pertinent to the film, an over-all reaction will be obtained.

I. PURPOSE

A	B
%	%
30
60
10
100	

A. Is the purpose clear?

B. Is the purpose achieved?

C. Is the film length in correct proportion to the purpose?

II. SELECTION OF CONTENT

30	.....
30	.....
10	.....
10	.....
20	.....
100	

A. Does the film present its information with convincing genuineness?

B. Are enough ideas included in pictures and sound to make the subject clear?

C. Is the number of ideas in correct proportion to film length? (Too many?)

D. Is the medium suitably employed (motion picture vs. slidesfilm)?

E. Does the film succeed in avoiding objectionable, unimportant, or irrelevant materials?

III. DEVELOPMENT OF CONTENT

40	.....
20	.....
30	.....
10	.....
100	

A. Is the idea development clear?

B. Is the story continuity smooth?

C. Does the film challenge attention and sustain interest?

D. Do camera angles and distances aid in explaining subject?

IV. PHOTOGRAPHY

20	.....
20	.....
20	.....
15	.....
15	.....
10	.....
100	

A. Is the eye effectively focused by scene layout?

B. Are close-ups, lighting, and varying scene footage technically well done?

C. Are dissolves, wipes, fades, slow motion effectively employed?

D. Are titles and captions legible and effective?

E. Is optical definition good?

F. Is camera movement smooth (panning, dollying, zooming)?

V. SOUND

10	.....
15	.....
10	.....
15	.....
10	.....
15	.....
10	.....
15	.....
100	

A. Is the character of the voice suitable?

B. Is the enunciation clear and delivery effective?

C. Is the vocabulary appropriate?

D. Does the narration succeed in avoiding over- or under-writing?

E. Does the narration highlight important material?

F. Is the speed of speech appropriate to content?

G. Are background or natural sounds effectively used?

H. Is the reproduction clear?

VI. ANIMATION

30	.....
30	.....
30	.....
10	.....
100	

A. Does the animation tell a clear story?

B. Does it stimulate interest?

C. Does it aid in understanding?

D. Is it well integrated with the balance of the film?

When you find a producer who can provide a production unit, especially script writer, director, and photographer who have the qualifications to serve you well, you can then fortify your decision by such considerations as the producer's financial responsibility, the number of repeat orders secured, ability to deliver on schedule, the geographical convenience of his plant, availability of good talent, sound and studio facilities, and whether or not he maintains a union shop.

In investigating a producer do not be overawed by the size of his establishment. Remember that a producer who hires outstanding studio facilities for photography and sound recording may be in a better position to deliver a quality product at an equitable price than a producer who owns his own sound recording and shooting stages if they are undermanned and of inferior quality. Only the larger producers can justify owning all their own production facilities.

But, above all, do not let the romanticism of the film world sway you from good business practice. Deal with successful, reliable people who do not make a mystery of their activities. Make your contract as clear and all inclusive as possible; but no matter how ironclad it is, it cannot guarantee an outstanding film. Such productions result when people of talent work together in mutual trust and understanding.

HOW MUCH SHOULD A FILM COST?

IN CONTEMPLATING the production of a film the first question a businessman asks is "How much will it cost?" When unable to obtain a direct answer to such a question, he is apt to be impatient and sometimes unreasonable, not realizing that he is placing a producer in exactly the same position as a building contractor who is asked how much a house will



Burton Holmes Films.

Overtime for camera crew and factory workers is costly, but sometimes it is cheaper than interrupting daytime production.

cost given only the briefest outline of its size. The answer in both cases is entirely dependent on the quality of the product desired. We can compare the foundation of a house with the research required for a film, blueprint with script, construction with shooting, and decorating with editing and sound

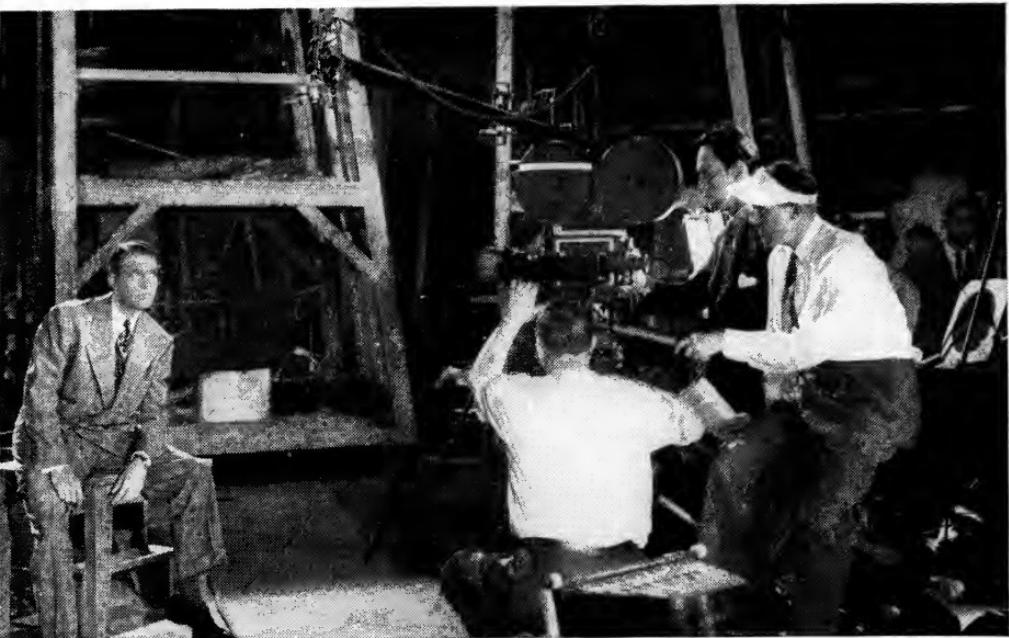
recording. Within each of these comparable classifications there are perhaps as many ways of building a film as there are of building a house.

The following analysis of the costs of a representative group of films produced by members of the Association of National Advertisers not only will give an idea of what industry is paying for films but will show the broad price range covering the same amount of screen time. The prices cover production costs only and do not include the cost of release prints in 16 mm for nontheatrical use and 35 mm for theater showings. In some instances print costs exceeded \$15,000 for a single production.

ANALYSIS OF FILM COSTS FROM SURVEY MADE BY ASSOCIATION OF NATIONAL ADVERTISERS

Type of film	Technical data	Cost per reel
Institutional.....	35-mm Cine-color	19,200
Institutional.....	35-mm Technicolor	25,000
Institutional.....	16-mm Kodachrome	7,830
Institutional.....	16-mm Kodachrome	19,600
Institutional.....	35-mm black and white	2,560
Institutional.....	35-mm black and white	9,740
Institutional.....	35-mm black and white	12,732
Institutional.....	35-mm black and white	41,700
Product promotion.....	35-mm black and white	1,980
Product promotion.....	35-mm black and white	10,000
Product promotion.....	35-mm black and white	6,600
Product promotion.....	16-mm Kodachrome	4,900
Product promotion.....	16-mm Kodachrome	12,225
Worker indoctrination.....	35-mm black and white	9,450
Worker indoctrination.....	35-mm black and white	12,700
Job training.....	35-mm black and white	4,600
Sales training.....	16-mm Kodachrome	2,770

To estimate the cost of a film requires a broad comprehension of the entire film process. You will, therefore, be



Willard Pictures for Pocket Books, Inc.

Hollywood talent can greatly add to the appeal (and the cost) of a film.

in a much better position to judge costs after you have completed the chapters in this book dealing with film production. This chapter will merely supply the framework for developing a knowledge of film cost-estimating.

As a rule the cheapest productions are the newsreel type in which existing action is photographed. Narration is recorded in the studio after completion of the photography. The prices in this classification will, of course, vary with the difficulty of obtaining the photographs, the number of locations, and the lighting equipment required. The sound can prove expensive if name narrators, specially composed music, and unusual sound effects are employed.

The most expensive productions are the Hollywood type, where actors and sets are required and dialogue is recorded at the same time the picture is taken. Some commercial pictures have been made in Hollywood on budgets that approximate those of regular theatrical productions. Between the newsreel and the Hollywood type of film lie many vari-

ations which can be produced to result in extreme differences of price.

Five thousand dollars may be taken as the basic cost for a one-reel low-budget film which is of a simple straightforward variety. An elaborate film of the same length can



Shooting in Hollywood of the Technicolor masterpiece, "Unfinished Rainbows," for the Aluminum Company of America.

easily cost up to \$25,000 or even more. To know what a producer is likely to supply for a given price it is advisable to estimate his usual manner of working by asking to see films that were produced on a similar budget. If a treatment or script is presented, ascertain how many extras over basic production costs are being supplied. The following list of

production-cost factors will prove a valuable check in determining what a producer is actually providing.

REQUIRED IN ANY PRODUCTION

Script	Editing
Photography	Narration
Negative film	Sound recording
Laboratory	Titles
Printing	

SOMETIMES PROVIDED

Animation	Stock shots
Research	Trick photography
Direction	Camera car
Technical advisers	Location expenses
Make-up	Re-recording
Costumes	Sound on location
Hairdressing	Extra narrators
Scenic artists	Name narrators
Grips	Stock music
Property men	Specially composed music
Electricians	Sound effects
Studio rental	Full union crews
Set construction	Overtime
Model work	Air shots
Art work	Photomicrographs
Optical effects	High-speed photography
Still photographs	Slow-motion photography
Professional talent	Stop-motion photography
Special properties	Stroboscopic photography
Royalties	

To the foregoing list must be added overhead costs which vary greatly, depending not only on a producer's method of operation but also on his method of accounting. For example, the salaries of production manager and director might in some organizations be charged to overhead and in others to

specific productions. The overhead of producers as established by government audit during their war production work varied from approximately 50 to 200 per cent of direct labor costs.

In estimating cost a producer cannot quote a price that allows him no margin of safety. Extras are always creeping in, and last-minute changes to improve the production are a usual occurrence in any artistic medium. Weather conditions are always a gamble, and a few poor days on exterior location will prove an expensive addition to estimated costs when a large crew is involved. A 5 to 10 per cent allowance for contingencies is easily justifiable if costs are figured closely.

Most large producers employ full union crews. This often makes their costs higher than those quoted by nonunion organizations. Generally speaking the photography, sound recording, and editing of these nonunion organizations are of lower quality. A minimum union photographic crew consists of cameraman, assistant cameraman, and electrician. A nonunion photographer may perform all three of these functions alone, but naturally it will take him longer to do the same amount of work, and the chances of his doing as good a photographic job are not likely, all other things being equal. The large service studios are all unionized. A producer who engages in nonunion production therefore has to use smaller and inferior facilities. An important fact to consider about union or nonunion production is the effect that it may have on the operation which is being photographed. The failure of an electrician to produce a union card when working in a unionized plant may result in a costly work stoppage. In any event it is unwise to permit a nonunion photographic crew to work in a unionized plant.



Audio Productions.

Pictorial and factual research is all important for such films as "The Search for Security" which tells the history of life insurance.

An important point to consider in estimating the cost of a film is your producer's record regarding extra charges over and above contract price. A check with the producer's other clients will clarify this point. Some producers are in the habit of quoting a fairly low price and then making an extra charge for every change, no matter how small. Other producers quote a fixed price; and unless the client changes his mind on a major point, the quoted price is the billing price. It is advisable in drawing a contract to specify what additional charges will be in order.

Contracts for film production are made in many ways. A fair arrangement is the payment of one-quarter of the price of the film on the signing of the contract, another quarter on the approval of the script, another quarter on the completion and approval of the photography, and the final quarter on delivery and acceptance of the completed film. Some producers operate on no down payment and expect to be paid in equal installments on the approval of the script, the completion of the photography, and the delivery of the film.

The ownership and provision for the delivery of the original negative or color print should be clearly specified. Some producers like to maintain control of the original in order that they may be assured of obtaining all the orders for prints. Although this is understandable, it is also clear that changes in the sponsor's policy may make it desirable to obtain prints from another source, or perhaps on subsequent productions other producers may be used and part of an existing film may be needed to incorporate in the new production. The best policy, therefore, is to specify that the sponsor will become complete and sole owner of the original upon payment in full of the contract price. Under this arrangement the film can remain in possession of the producer with the clear understanding that it may be claimed by the sponsor at any time.

In any arrangement it is always well from the sponsor's viewpoint to provide for cancellation of the contract at any stage in production, with the provision that all work done is to become the sponsor's property upon suitable payment. Thus production can be suspended because of some unforeseen event and continued later without the sponsor's being under obligation to deal with any one producer.

It is important to specify that the film be copyrighted in the name of either the sponsor or the producer. When the film is copyrighted by the producer, full assignment of all rights should be made to the sponsor. This procedure is preferred by some, since it places the responsibility for obtaining clearances of script material and photography directly with the producer and to a certain extent frees the sponsor from liability.

The problems of cost analysis in slidefilm production are similar to those in motion pictures. The cost of slidefilms usually varies in direct proportion to the number of frames

in the production. Although it is impractical for a producer to figure costs on a per frame basis, such estimating will give a general idea of the cost. A frame may vary in price from the dollar or less required to reproduce a free publicity photograph on a film strip to several hundred dollars when special, expensive art work is used. However, the ordinary commercial production costs between \$15 and \$30 per frame for a silent black-and-white slidefilm. Approximately \$5 a frame should be added if simple narration is desired, and another \$10 to \$20 per frame for color.

It is sometimes difficult to understand why a slidefilm produced on a strip of motion-picture film, easily carried in the vest pocket, and accompanied by what looks like a regular phonograph record can cost thousands of dollars. If you consider the work that goes into the production of such a film, it proves to be very inexpensive. Compare the thought and work that go into each frame with the preparation of individual advertising layouts and the recording with a half hour's radio program, and the cost takes on a different light. Actual labor for retouching, assembling, and reproducing frame cards on the film strip can easily represent one-third of the cost of production. The expense of script writing and photography and the great amount of detail required to build a convincing smooth-flowing production does not leave room for excessive profits by the producers in this field.

When all factors affecting production of slidefilms and motion pictures are considered, it is easy to see how unfair it is to request a firm bid on a short treatment or on a rough idea of what a film is to cover. The best way is to make a separate contract for the writing of a script. Then an accurate estimate of all other costs can be obtained. In order to prevent the script writer from going too far astray,

it is best for the sponsor to indicate approximately what the budget will stand, for in film production, as in most types of business, an intelligent person gets just about what he pays for. A script writer in the commercial field must be somewhat of a cost accountant and should be able to plan a film that will cost within 10 per cent of a suggested price.

On the opposite page are cost estimates made by two producers whom we shall call X and Y. Both are reliable organizations with long experience and have produced many outstanding films. Both use full union crews. Producer X was asked to estimate on an inexpensive type of production which, though fully up to all technical standards, would accomplish the purpose in a simple way. Producer Y was asked to estimate on producing the film to the best of his organization's ability. The estimates, therefore, represent different ways of visualizing a production, since both were made from the outline of the content which follows.

A FILM TO PRESENT THE HISTORY OF PAPERMAKING IN AMERICA

Start with views of the 1690 Rittenhouse Mill in Pennsylvania. Show the early papermaking process through studio reconstruction of an early paper mill. Trace through animation the development of papermaking machines. On maps show the spread of industry throughout America. Show modern papermaking processes from logging through the complete manufacturing process. The sponsor is to provide access to plants near Albany, N.Y. Show modern uses of paper to dramatize the importance of paper as "man's most used and most useful product." A production breakdown follows:

Narration type film
Black and white
Produce in 35 mm
Total length 950 ft 35 mm

Animation approx. 100 ft
Studio footage approx. 250 ft
Plant interiors approx. 400 ft
Exteriors approx. 150 ft

ESTIMATED COST OF PRODUCTION*

		Producer X	Y
A. Cost of materials and service			
1. Negative raw stock picture and track.....	165	215	
2. Laboratory, including positive stock.....	254	331	
3. Optical effects.....	35	150	
4. Titles.....	25	100	
5. Still photography and supplies.....		35	
6. Animation.....	800		
7. Properties.....	125	340	
8. Royalties.....		75	
9. Music.....	135	1,200	
10. Stock shots.....	90		
11. Art supplies.....	15	90	
B. Rentals			
1. Photo studio.....	300	400	
2. Camera equipment.....		150	
3. Sound studio.....		180	
4. Lighting equipment.....	65		
5. Properties.....	20	100	
C. Direct labor			
1. Script writers.....	300	625	
2. Directors.....	220	450	
3. Camera crew.....	300	600	
4. Electricians.....	130	335	
5. Grips.....	40	215	
6. Property men.....	40	58	
7. Scenic artists.....	53	77	
8. Carpenters.....	54	101	
9. Make-up men.....	25	25	
10. Sound crew.....	45		
11. Still photographers.....		90	
12. Art director.....		250	
13. Animators.....		1,100	
14. Narrators.....	50	100	
15. Talent.....	75	140	
16. Editing.....	215	275	
D. Miscellaneous			
1. Transportation.....	165	150	
2. Subsistence.....	130	275	
3. Contingencies.....	400	250	
Production and sales overhead.....	928	3,552	
Profit.....	801	2,216	
Contract price.....	6,000	14,250	

* Comments on items in estimates: *A* 5 and *C* 11—Producer *X* is not providing still photographs under contract; *A* 6 and *C* 12–13—Producer *X* subcontracts animation, *Y* has own animation staff; *A* 8—Producer *X* is using an unlicensed sound system. *B* 2—Producer *X* owns own photographic equipment, Producer *Y* rents equipment; *B* 3 and *C* 10—Producer *Y* rents sound studio and personnel, *X* has own sound equipment and personnel.

SUPERVISING A PRODUCER

HAVING SELECTED a producer and signed a contract, the sponsor should not sit idly by and hope for a good result. Intelligent supervision can well spell the difference between the success and failure of the production in terms of its usefulness in the situation for which it is designed.

The first step is to outline clearly the objectives of the film. This should be done in the form of a short, factual outline, avoiding attempts at visualization. Let the producer's pictorial thinkers present the visual treatment, and add your ideas to it. Boiling down the story to be told into a few brief paragraphs that meet the approval of all interested parties within an organization is often not easy, but it is the best way to provide a firm foundation for a film. Nebulous talk is the easy way but does not make for efficiency. Factual material should be supplied the script writer, and technicians, engineers, and sales experts should acquaint him with the special procedure and language of the industry.

To be a competent judge of whether or not a script will result in a good film requires intimate knowledge of the entire film process. Most business executives do not possess such knowledge and therefore must rely largely on the producer's word as to whether or not a given script will make an outstanding motion picture. However, the accuracy of all statements in the film should be checked, and matters of policy and appropriateness carefully considered. Remember that a script writer is really a translator whose job it is to put the thoughts of business executives into the language of the screen. Be careful that the meaning is not distorted in the process.

Script approval is the crucial point in film production. Once approval is given, the die is cast. Since script writing is an art, a good script defies adequate description or definition. In evaluating a script certain questions may be asked which, though not assuring a quality production, will serve as a check against many of the shortcomings often encountered. The questions follow:

1. Will the film be an appropriate length?
2. Is the introduction within the experience of the audience?
3. Does the introduction stimulate interest?
4. Will the film give a satisfactory over-all impression?
5. Is the film properly designed for the intellectual level of the audience?
6. Are the important points made in the best possible sequence?
7. Is the action within each sequence in the best possible order?
8. Do the various facts receive emphasis in proportion to their importance?
9. Does the picture contain a minimum amount of static material?
10. Are there ample orientation scenes?
11. Will the film have tempo and rhythm?
12. Are picture and sound transitions smooth?
13. Are technical terms within the knowledge of the audience?
14. Do word descriptions closely follow the picture?
15. Do identifying words come at start of a picture sequence?
16. Have the following motion-picture techniques been used to the best advantage where they can contribute to the quality of the film?

Slow motion	Extra narrators
Stop motion	Dialogue
Cartoon animation	Sound effects
Technical animation	Music
Camera tricks	Unusual camera angles
Opticals	Establishing shots
Composites	Close-ups
Montages	Panning
Photomicrographs	Trucking
Model work	Dramatic lighting

The various departments within a business organization, such as legal, engineering, and sales, should check the finished script. Care should, however, be taken that they do not become so petty in the changes that they make that the flow of the film is spoiled. Many a good film has been ruined by needless qualification of facts that engineering and legal departments have demanded. The over-all impression is the important thing. One industry film executive recommends that scripts be read aloud to obtain approval from company members who are not experienced in film making. A technical man should never be allowed to take a script home overnight. The result may be compared to the revision of a poem by a lawyer.

One way in which the desire of various members of the sponsor's staff to participate in production can be satisfied is to set them all thinking about a title for the film. A sparkling main title can add much to a motion picture. It should be short, catchy, and phonetic and if possible arouse curiosity. A well-known expression from literature or a colloquialism may suggest a good title. One business firm that uses a good many films has an office contest to name each new production. A short description of the content of the film is distributed, and a \$10 prize is given to the person who suggests the best title. The competition is always keen, and the cash award is only a minor consideration, for everyone seems to like naming things, and it is a painless way of experiencing some of the pride of authorship.

The National Tuberculosis Association, long intelligent users of the motion-picture medium, have always selected outstanding titles. A film designed to teach Indians about tuberculosis was called "Another to Conquer"; a similar film for negroes, "Let My People Live." A film on rehabilitation for the tuberculous is titled "They Do Come Back," and



Alexander Film Company.

This camera setup resulted in a convincing beach scene.

other recent productions are "Behind the Shadows," "Cloud in the Sky," and "Goodbye, Mr. Germ." "Golden Glory," a film by Standard Brands, and "Our Daily Bread," by International Harvester, are both good titles for similar films tracing the story of wheat from harvesting through to the final making of bread. "More Power to You" tells of the nutritive value of A & P bread. "Guardians of Plenty" tells the story of pest control for DuPont, and "Frontiers of the Future" publicizes the great future of America taking shape in the test tubes of our industrial laboratories. The title of the film "Peruvian Gold" is enticing but misleading. The film presents facts about the American potato crop, with information on combating diseases of the potato plant. The origin of the potato in the highlands of Peru is an interesting introduction to the subject, but most people need to see the film before they understand the title.

Finding an outstanding title is not an easy job. Perhaps that is the reason why a good title is associated with a good film, for it reflects the care that the entire production has received.

When it comes to the actual shooting of the film, the sponsor can be of great assistance in helping the producer find suitable locations for photography. If a file of still photographs is available, these can be studied for the best possible pictures and angles. One of the sponsor's executive assistants should be assigned to the producer in order to facilitate his work. This not only will avoid unnecessary interference with production operations but in making the producer's operation more efficient will in the final analysis result in greater screen value to the sponsor.

Model releases should be obtained from each employee appearing in a picture when the film is to be used for advertising purposes. Although this is not always done, it is

Date _____	
<p>I HEREBY consent to the use by you or by any one you authorize, of a Portrait, Motion Picture, Sound or Silent, or photograph of me, or any reproduction of same in any form whatsoever. I agree that such Portrait, Motion Picture, Sound Track of myself, in plates or negatives connected therewith shall be and remain your personal property.</p>	
<p>As this consent will be acted upon by you forthwith, it is irrevocable. I am over twenty-one years of age.</p>	
Truly yours,	
_____ (Name Here)	
_____ (Address)	
<p>Witness: _____</p> <p style="text-align: center;"><i>(To be signed by Parent or Guardian in case of minority)</i></p>	
<p>I hereby individually and as (Father), (Mother), (Guardian) of the above, consent to the foregoing.</p>	
_____ (Name Here)	
<p>Witness: _____</p>	
<p>CONSIDERATION:</p>	

It is important that everyone appearing in an advertising motion picture sign a release.



National Association of Manufacturers.

A representative of the sponsor should accompany the production crew to advise on company policy.

an advisable safety precaution to take. Sometimes a small fee, \$3 to \$5, is given the employee at the time of signing the release to make it more binding. Since such payments do not increase the cost of the film by any appreciable amount, they are a good employee-relations policy. Such payments can be made either by producer or by sponsor, according to the terms of the contract, but it is a general practice for the sponsor to make such payments when the photography is in his own plant or office and for the producer to make them on other locations.

When professional actors and actresses are used, they are usually selected by the producer and submitted to the client for approval. If they are to take parts in which they will wear regular street clothes, a personal interview may be satisfactory. When character parts are called for, requiring special costumes and make-up, it is best to rely on the producer's judgment in selecting the proper talent. Still photographs or scenes from films in which an actor appeared in a part similar to the one contemplated will be much more helpful in making a selection than a personal interview.

The selection of narrators should be kept completely im-



This girl was cast as a nurse from the glamour picture on the left. Could you have envisioned how she would look as a nurse? It is best to rely on your producer for the selection of talent.

personal. Have the producer select two or three voices that he believes best suited for your production and have each of the narrators make an audition by reading a few paragraphs of the script which can be recorded on a small phonograph record. Then judge the voices without meeting the narrators. Once you have seen a narrator, it is difficult, if not impossible, to separate voice from personality which naturally complicates your decision, since the voice is the only factor of interest. By all means do not force an amateur or inexperienced narrator on a producer. It almost always results in costly retakes, and the final result is seldom appreciated by anyone but personal friends of such a narrator. If you must make such an experiment, first make a phonograph recording to run synchronously with the film. Play it back, and get the honest opinion of disinterested people.

It is extremely important that commercial films, especially those which are designed for advertising purposes, do not take advantage of the fact that they have the audience's undivided attention. If a radio program is uninteresting, the dial can easily be switched to another station; if a

printed advertisement is dull, the page is quickly turned. In both cases the advertising message goes unheeded, but no resentment has been built up. The very power of the screen to hold an audience's undivided attention can, however, result in a negative reaction if the presentation is dull and boring.

The chief offenders are those films which plug the advertiser's product continually. Those which through poor production techniques present a boring show are almost as bad. Chief of the latter offenders are films that attempt to outdo Hollywood on a few thousand dollars, combining an amateurish love story with pushover selling. Pictures that are needlessly long, lack continuity, present too many statistics, or use involved language can also be extremely boring.

"They pay off at the box office" is an expression common in the theatrical motion-picture world. It serves to keep that industry constantly aware that audience reception is the one and only criterion. "Does it sell" or "Does it teach" is the yardstick in the nontheatrical field. Obviously a film, no matter how artistic or exciting, cannot either sell or teach unless it is shown, and it can accomplish these functions only in direct proportion to size of its audience. A film must, therefore, be interesting enough to demand an audience. Mention of a product in its proper place will not lessen the appeal of a film. Dragging a product in by the teeth will.

A producer is selected because of his demonstrated ability to produce the desired kind of work. Therefore do not question his artistic judgment and knowledge of film technique at every turn. Give him the facts, and make certain that he sticks to them. No producer can do his best work if he is constantly hampered with suggestions from the client.

This does not mean that constructive ideas and valid criticisms are not to be passed along. It does mean that the sponsor should not one day decide that a certain sequence is absolutely essential and a couple of days later want it left out.



General Mills, Inc.

An executive speaks via the motion picture.

The more a business executive knows about the film process the more constructive his guidance of production will be—the less he will be at the mercy of a producer. The ensuing chapters therefore explain the various elements of production. In removing the mystery from the film-making process, they not only will aid in proper supervision but will give the comprehension necessary for intelligent appraisal of the various types of nontheatrical films.

THE SCRIPT

THE BEST scripts are produced by men trained in pictorial thinking. Some of the world's best writers would produce poor and impractical scripts, for they think in words. Their stock in trade is a clever handling of grammar and rhetoric, parallel structures and similes, but they have little knowledge of the technique of the screen, of optical effects and animation, of camera angles and pictorial continuity. Thus, script writing has become a profession in itself—a marriage of the arts of writing and photography.

The script writer should always remember that the nerves connecting the eye with the brain are approximately twenty-three times as large as those connecting the ear with the brain. Psychologists claim that 90 per cent of our knowledge comes through our eyes, 5 per cent through our ears, and the other 5 per cent through our other senses. Therefore, the picture should be the prime consideration—sound should be used to augment the screen image. The thought-conveying powers of the screen become extremely limited when pictures are used merely to illustrate words.

To ensure proper pictorial planning the method used in developing animated motion pictures might well be extended to all film production. This method requires that a rough sketch be made of each scene. The film can thus be studied scene by scene and visualized in its entirety. Such picture planning, called the "story-board" method, ensures that sponsor and producer both have the same pictorial concept of the film. Sometimes the story-board sketches are photographed as a slidefilm. When the sketches are projected and the narration is read to accompany them, a good idea of the final effect of the film will be obtained.

The narrative of a motion picture need not always be bound by the ordinary rules of grammatical construction. The screen picture carries the greater part of the continuity and story. The spoken word need only fill in the details not supplied by the picture. The narration can be lyrical or colloquial. Some of the most effective pictures in the nontheatrical field have been accompanied by narration written in what amounts to free verse. The commentary for "The River," a government-produced film on the dangers of erosion, was reminiscent of Walt Whitman. Pauses, long pauses, when there is nothing pertinent to say not only are better than a continual flow of meaningless words but are often extremely effective.

The type of language used with a film varies with the subject and treatment. In training films where the appeal is to reason, simple direct language is best. In advertising and public-relations films where it is desired to play on people's emotions, poetic English dramatically narrated is often very effective. It should be remembered that the more definite the information that a script writer has on a subject the easier it will be for him to write an interesting script. It is easy to talk when you have something to talk about, and the audience's attention is easy to hold when you have something to say.

A script writer interprets the ideas of the subject expert into the language of the screen. To do this he must know his medium thoroughly. The best films tell a story even without the accompanying sound track. Words should name and explain, not steal the show. A picture by its very nature is specific. Therefore words are most important when it is necessary to generalize or to qualify.

Although the usual approach in a business film is factual rather than emotional, a script writer must understand how

the lighting, music, and dramatic action can combine to guide emotions. It is not necessary for him to know how to take a picture, but he must know precisely what the camera can do, what animation can accomplish, and how editing can give meaningful sequence to individual scenes.



Photo & Sound Inc.

A storybook helps everyone in visualizing a script.

In making a motion picture that is to carry a sales message, a script writer first decides on the points to be brought out. Then he dramatizes them. He adds portions of human interest as the chef adds seasoning—something that is familiar, something curious, something of value, then perhaps a dash of emotion or a suggestion of sex. By the use of smooth motion-picture technique, cleverly combining photography and sound, an audience can literally be made to laugh or cry, thrill or despair, love or hate, and last, but not least, open its pocketbook.

Product and company names are best shown visually

and not plugged by the narrator. The visual is, of course, the more forceful method of presentation; and when a company product and the name come naturally in a pictorial continuity, there is little chance for resentment; but when the narrator starts plugging a name, the audience becomes aware that they are being "sold" and usually reacts unfavorably. Large users of films have found that even when films are used for direct sales purposes, it pays to be restrained in mentioning the product in the narration. Institutional-type films should rarely ever mention a company or a product by name.

Script writers use abbreviations that may prove baffling to the uninitiated. L.S. for long shot, M.S. for medium shot, and C.U. for close-up are the most common. "Stock" refers to motion-picture footage that is available from film libraries. "Pan" and "truck" indicate camera movement. "Dissolves," "wipes," and "fades" refer to optical effects. "Bell" in a slidefilm script refers to the low bell or buzzer signal for the projectionist to turn to another frame. All these terms will be discussed in detail in later chapters and are defined in the glossary.

Script writing is not a subject for a long chapter, for to explain script writing is to explain the entire motion-picture process. This book in its entirety is, therefore, a script writer's guide. It will be interesting, however, to study the various methods for setting up scripts. It is general practice in non-theatrical work to devote the left half of the script sheet to a description of the picture, with the right half devoted to sound, whether it be narration, dialogue, music, or sound effects. Sometimes for dialogue pictures the scene description and dialogue are typed one following the other, as is the general practice for theatrical productions. The sample pages from scripts reproduced on the following pages show some of the various ways in which scripts are presented.

PICTURE**SOUND**

FADE IN

95. Art is standing at the cashier's window. As he looks over the receipts, he remarks to Marcia, who is looking over the office.

Marcia turns to him and speaks teasingly.

Joe at this moment steps into the office. He has overheard the last remark.

Art looks meaningfully at Marcia, who shrugs and turns away.

Then Art halts before a steel file. He pats it lovingly. He pulls open one of the drawers.

Marcia has walked over to the glass partition and is looking down over the whole store, then she turns as Art steps behind her.

DISSOLVE

ART: Well, we're going places!--getting better every day!

MARICIA: You're not boasting, are you? Are you hinting that you really are a magician?

JOE: Miss Marcia, you've got to admit that we have a different business since Art came with us. You've got to give him credit for this new set-up.

ART: I don't want any credit--all I want is cooperation - teamwork.

ART: Joe--this is our card file system. Here we keep the names of all our customers. Old customers that we're going to try to regain. We'll keep the files right here in the store, where we can get the customer's buying history almost as soon as he enters.

MARICIA: (grudgingly) And to think that all this cost even less money than the small amount you first figured on, Mr. Ferguson.

ART: Please--call me Art.

Scenes

Narration

SEQUENCE A

Credit Titles

(Music)

SEQUENCE B—WHAT IS TIME?

Earth, over which we see the shadow of a swinging pendulum.

Time is the background of our lives.
It regulates our every action.
It is universal—ever present. But what is it?
And how can it be measured?

Tree branch covered with spring buds.

Spring—

Same tree branch with summer leaves.

Summer—

Same tree branch with leaves falling.

Fall—

Same tree branch covered with snow and ice.

Winter—the changing, recurring seasons suggest the idea of Time—

Earth, over which we see shadow of pendulum (same as before).

—suggest a way of measuring it.

(Music)

M.S. of family group. Baby in young mother's arms, grandmother is also in group.

The family—with the young child...

C.U. child in mother's arms.

C.U. mother

Mother, who has lived longer....

C.U. grandmother

Grandmother, with her many years...

M.S. of family as before

They are evidence of the flow of time and of an order of events by which time can be measured.

Script for an educational film for Elgin National Watch Company.

Scene 10 - 120 feet



*STRIP TEASE EFFECT —
SUITS 1850, 1900, 1920, 1945*

Female Narrator # 2:

Hoop skirt days - when twelve yards of serge made all figures look alike.

MUSIC

Well, well, she has legs.

MUSIC

Another decade - the shape of things to come.

MUSIC

Now brave young things clothe themselves largely in sunshine, and half a yard of strategic jersey saves the bathing suit from extinction.

MUSIC

Scene 11 - 12 feet

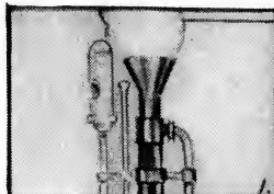
Female Narrator #2:

Let's have a race and study underwater lines -- new and old. They're off!



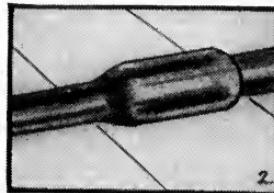
Script of a motion picture for television syndication.

1. Copper piping is frequently used aboard ship because copper is a soft, malleable metal which can withstand vibration, expansion and contraction, and exposure to weather better than most metals.



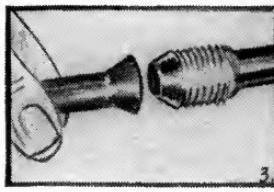
1. USE COPPER TITLE BACKGROUND, WITH DOLLY.

2. In many cases, copper tubing or pipe must be flared -- that is, stretched out at one end to make a funnel-shaped form.



DISSOLVE TO
2. CU - FLARED CUP JOINT, FLARE.

3. The flaring of small copper tubing, for fitting with a coupling joint, is the easiest flaring procedure.



3. CU - COUPLING JOINT, SHOWING PLACE FOR FLARED END OF SMALL COPPER TUBING. WORKER FITS A LENGTH OF FLARED TUBING INTO THE JOINT.

CUT TO

4. Small copper tubing usually comes in an annealed, or soft, state, and is shipped in coils.



4. CU - WORKER CUTS LENGTH OF SMALL TUBING FROM COIL.

Script for a U. S. Navy training film.

74. (Continued)

VOICE FROM RADIO:

We now bring you, on this election eve, statements from both candidates. Speaking from City Hall we shall hear first the Honorable James C.....

At this point the woman's hand impatiently dials a new station.

SOUND: Blare of JAZZ followed by a comedian's voice.

COMEDIAN'S VOICE:
(Stridently)

That was no lady, that was my.....

SOUND: Loud Crowd laughter.

The woman settles back contentedly in her chair.

75. CLOSE SHOT - INSIDE TIM'S DINER

Tim, in a dirty white apron, slops a cup of coffee across the lunch counter toward a customer who is reading a newspaper, elbow on the counter. The customer sits up and flicks the newspaper with distaste.

CUSTOMER:
This political stuff gives me a laugh.

TIM:
Sure! It's a frame-up. They don't even count the votes!

SLOW DISSOLVE TO:

76. MEDIUM CLOSE SHOT - INTERIOR POLL

The last ballots are being counted. A tired official tallies while a second official, observed by a watcher, opens the ballots.

NARRATOR:

But your vote does count your vote and that of your neighbor.

Script for a civic film by Grant, Flory, and Williams. This type of script setup is more usual for theatrical productions.

32. CU. Radio grille.

1ST NARRATOR: In keeping, too, with the basic interior design element, is the radio grille, awaiting only the sound of music to add a finishing touch to its attractiveness!

BELL

Exterior
33. LS. Beauty shot of entire car from most advantageous angle.

1ST NARRATOR: Yes, inside and out -- from every angle -- the new Fords present newer and greater beauty -- refinements and touches of luxury that make this an outstanding car in its price class.

BELL

34. Interior
Beauty shot of rear seat with man and two girls. Overlettering to read:

NEW COMFORT!

1ST NARRATOR: But beauty is not all. Into these great new cars has been built a new measure of comfort.

BELL

35. LS. Two men measuring wheel-base of Super DeLuxe Ford. Lettering at bottom of frame reads:

.114-INCH WHEELBASE!

2ND NARRATOR: (in different tempo) ... Outstanding comfort in the new Ford cars is fundamentally established on the one hundred and fourteen inch wheelbase ...

BELL

HOW A FILM IS PHOTOGRAPHED

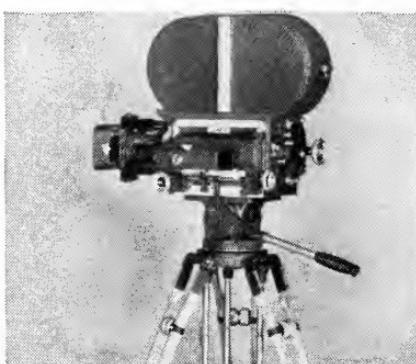
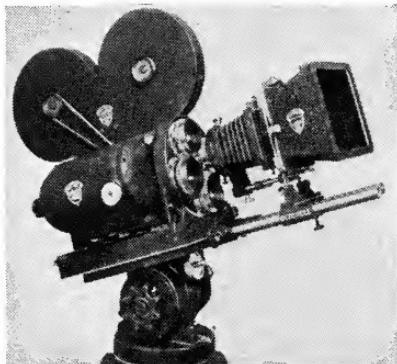
WHEN a motion picture reaches the shooting stage, the chief work of the sponsor and script writer is over. It is they who have blueprinted the action that the camera crew must bring to life on the screen. A knowledge of the camera's potentialities and its limitations is, therefore, a necessity for the script writer and can be of great value to the business executive who is supervising film planning.

The great expense of motion-picture production often comes as a shock to business executives who know something about cameras through their interest in amateur photography. They do not stop to consider that a professional cameraman must create a smooth-flowing film from a prescribed pattern. He must be master of the conditions that he faces. The amateur, on the other hand, is usually an opportunist, seizing on propitious circumstances to produce a good picture whatever its subject or its message may be.

In nontheatrical-film production the picture is finally composed through the joint efforts of director and cameraman and, in some cases, with the aid of a technical consultant. The exact division of responsibility for action, composition, and lighting is rather flexible, varying with different producers. Regardless of who is finally responsible for the completed pictures, the know-how of pictorial composition is a most essential element of motion-picture production. For the sake of simplicity the man behind the camera will be considered entirely responsible for transmitting the imagery of the script writer to the film audience.

The prime tool of the cinematographer is, of course, the camera. The difference between one make of camera and

another is largely a matter of convenience of operation. No one can sit in a projection room and say for certain which type of camera was used to take any given sequence. The important point from a film sponsor's standpoint is that the producer can provide equipment which will produce a satisfactory screen image—sharp, brilliant, and free from flicker and scratches. However, owing to the basic function that cameras perform and the frequency with which they are discussed, a review of the various makes is in order.



A Mitchell 16-mm camera (above) and the 35-mm studio model (right).

Modern 35-mm motion pictures are taken, for the most part, with Mitchell or Bell & Howell cameras. The Mitchell, which is the choice of most cameramen, is used in filming over 85 per cent of films shown in theaters throughout the world and is used for most important industrial productions. Incorporated in its design is a rack-over movement which permits viewing the scene through the actual lens to be used in photographing, without the necessity of moving the lens from its adjusted place. This enables the cameraman to check the composition of the picture up to the very moment

before the "take," when a mere flick of the finger swings the camera into position behind the lens. The Bell & Howell was originally designed to be focused by swinging the lens around in the turret to coincide with the viewing aperture. When ready for a take the lens was turned back in front of the film aperture and the entire camera moved over to place the lens in the same position that it occupied during focusing. Many producers are now having their Bell & Howell cameras equipped with Mitchell-type rack-overs.

The Bell & Howell shuttle (the mechanism that actually moves the film and registers it in place for each exposure) is known for its extreme accuracy. The film is actually locked in position for each exposure. It is for this reason that the Standard Bell & Howell is used for rear projection and for other highly precise work such as animation and optical printing.

Bell & Howell also makes the Eyemo which, with the DeVry, is the generally used 35-mm hand camera. Several types of prewar German cameras have been brought back in quantity from overseas and are now often used. These cameras normally accommodate only 100-ft reels, but this does not present a serious problem, for most shots taken with hand cameras are only 8 or 10 ft long.

The CineKodak Special is the most widely used 16-mm professional camera, although the new Mitchell and Maurer cameras, which are especially designed for professional use, will doubtless become increasingly popular for nontheatrical production.

The fact that a camera may be moved during exposure greatly adds to the potentialities of the film as a medium of expression. Through the movement of the camera a scene becomes largely subjective. Each individual in the audience views the action with the camera lens as his eye. Like the



Pathescope Production

Setup for a trucking shot. The white outline shows the camera field. It will move slowly to the right to give a convincing picture of girls at work at a busy switchboard.

human eye, the camera is moved in two ways. It can be revolved in its socket, or it can be moved bodily from place to place. These actions can also be combined. In motion-picture terminology the swinging of the camera on its support is called "panning," and moving the camera's position during exposure is known as "trucking."

A pan is used primarily to cover large areas that cannot be included in the field when the camera is held steady in one position. The usual movement of a camera during a pan is from left to right, as this is the normal movement of the eye in reading. However, the difference between left to right and right to left is so slight that the dictates of each

particular scene should decide the direction of the pan. An important use of the pan is to follow moving objects. For this use the long-focus lens which gives a large image when the camera is well removed from a scene has distinct advantages, for objects can be held in the field much longer without too great a difference in angle.

The pan is often used as an identifying shot with the last position held as the composition in which the action will take place. Thus, for example, the camera sweeps across an entire landscape showing the nature of the country and then pans down to a farmer tilling his field. When the camera settles into its final position, the farmer moves in to fill the composition and is seen in close-up.

Instead of the farmer's moving in to fill the picture the camera can move toward the farmer. Such bodily movement of the camera during exposure is called "trucking." This specific type of trucking is sometimes called a "zoom." However, the camera can be moved in any direction during the taking of a scene. It may, for example, follow two people who are moving together and constantly maintain them in the same relative camera position. This is basically the same thing as photographing two people on a moving conveyance that also carries the camera.

The early motion-picture cameraman who cranked his camera by hand often used an entirely different type of motion to create a mood. He accelerated or retarded motion by varying the frames taken per second. Modern synchronous motors and the advent of sound have largely killed this medium, yet it offers tremendous possibilities. In Chaplin's classic picture "The Kid" retarded motion (produced by speeding up the camera) was effectively used to give an unrealistic quality to the dream sequence, whereas in "Easy Street" accelerated motion was used to heighten the effect.

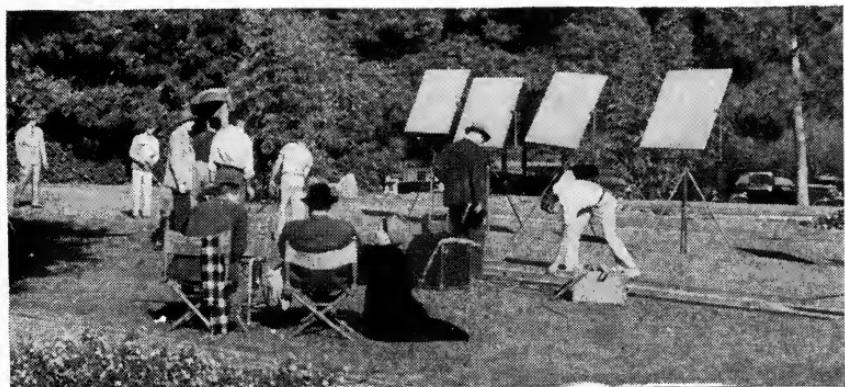
of street brawls. The study of Chaplin pictures and comedy shorts in general will reveal the use of practically all the tricks of the camera trade, many of which can well be adapted for use in business films.

Basic to an understanding of camera work is an understanding of light. Such understanding can best be reached, oddly enough, through the study of shadows, for shadows give form and character to pictures. When light and soft they can create a gay mood; when dark and angular they are mysterious and sinister. Steichen, the dean of all still photographers, spent nearly a year in the early stages of his career photographing a cup and saucer. Through this simple procedure he so mastered the fundamentals of light and shade that for half a century he has been an acknowledged leader in his field.

To understand lighting a cameraman need not be indoctrinated into any mysterious cult of specialists. He need master only the simple fundamentals of frontal, side, back, overhead, and low lighting directed at the subject in either diffused or concentrated rays. With an understanding of these, he can supervise the lighting of the largest set. The fundamental principles of lighting are often overlooked when working with a large number of lights, and some cameramen have a tendency to flood the scene with lights from all directions. This is a safe but uninspiring way to produce a picture. Inexperienced cameramen usually photograph exterior scenes just as the sun lights them. Competent production crews alter the natural lighting to provide the best possible screen image. Diffusion screens are used to soften the sun's direct rays, and reflectors divert light to areas that would otherwise be too dark. Artificial light is also used to supplement the sun's rays.

Photographers often use a viewing glass to reduce a

great volume of light to proportions where its values can be easily analyzed. Such glasses are usually a dark shade of blue, although there are special glasses that compensate for the color sensitivity of various films in order to give a visual image closely approximating the film reproduction. Some cameras have such a glass built into their view finder.



Beaumont and Hohman, Inc.

Crew on location for the Greyhound Technicolor film, "This Amazing America." The four reflectors in the background will light up the shadow side of the girl and man as they walk along.

The relative brightness of objects before the camera is usually controlled by the lighting of the scene. The various tones of a picture can, however, be controlled through filtering the light rays as they enter the camera by the use of colored pieces of gelatin or glass known as "filters." Various shades of filters give different monochrome rendering of objects. To appreciate the effect of filters, photographic emulsions must first be understood.

Black-and-white photographic emulsions record the colors of the spectrum in various monochromatic tones. If a film is completely sensitive to a given color, it will record that color in the finished print as white. If it is not sensitive

to a color, the final result will be black. It can easily be seen how impractical a film would be that was equally sensitive to all colors, reproducing them all as an equal tone. Modern emulsions are designed with carefully balanced characteristics closely approaching the sensitivity of the human eye.

Early films were coated with a so-called "color-blind" emulsion which, while sensitive to blue, recorded red as black and other colors very close to black. Next orthochromatic emulsions were developed which, while still partial to blue, were more sensitive to the yellows. The modern panchromatic film is sensitive to red as well as blue and yellow, although the greatest degree of sensitivity remains with the blue.

From the first, improvement in film has been responsible for the greatest advancements in motion-picture work. After Eastman invented roll film for snapshot cameras, the motion picture was a natural evolution. Consistently through the years film has improved. At first it was slow and color blind, with little latitude of exposure. The modern panchromatic emulsions are extremely rapid, color sensitive throughout practically the entire spectrum and with considerable latitude in exposure. This permits a slight misjudgment in exposure without spoiling the picture. With accurate exposure detail can be recorded all the way from strong high lights to deep shadows.

Through the use of corrective filters we can adjust the monochrome rendition of colors. For example, a dark blue normally shows on the screen as a light grey. Through the use of a yellow filter, we can darken it to a truer monochromatic tone. Other filters, called contrast or selective filters, are used purposely to distort color rendition in order to obtain a desired effect. For example, a red filter will turn a dark blue



Above is the studio set for the U. S. Tire film, "Master Merger," produced at the Fox Movietone studio in New York. Below is a scene from the film. The night scene over the filling station was printed in later through a masking process.



U. S. Rubber Company.

sky to black, giving a dramatic effect. In copying a white sheet of paper with red printing the use of a red filter would turn the red to white in the positive print and thus make the printing invisible. The use of a green filter would make the printing practically black.

In exterior photography the prime uses of color filters are to darken the color of the blue in the sky and thus bring out the clouds. This can also be accomplished by the use of a polar screen. Such a screen takes advantage of the occurrence in nature of partially plane polarized light. By rotating the screen, the relative brightness of the sky can be accurately controlled, since the effect produced can be readily observed on the focusing glass. The polar screen has the added advantage of not affecting the color rendition of foreground objects and can be used with color film to darken the blue in the sky. Polar screens are also widely used to cut down reflections from smooth surfaces such as glass, water, and highly polished wood.

Although a cameraman ordinarily uses only one camera, it is not practical for him to standardize on only one lens. The manipulation of lenses is in reality the most important element of camera operation, for it is the lens that governs not only the field of vision of the camera but the sharpness of the photographic image and its perspective.

Of course, in the actual use of a lens the first and most important action is to focus it. This is a simple enough matter, but it must be carefully and accurately done. The usual method is to measure off the distance, set the lens by scale, and then check it by eye through the viewing screen. This procedure serves to eliminate costly blunders. When the subject or the camera moves a sufficient distance during exposure to affect the focus noticeably, it is necessary to adjust the lens during the shooting. This is called "follow focus"

and requires careful rehearsal before the action begins.

The chief difference in lenses lies in their focal length. The longer the focal length of the lens the narrower its angle of vision. Since the frame size always remains the same, the images of objects will vary in size in direct proportion to the length of the lens. Short focal length lenses produce wide angle effects; long focal length, telephoto effects. Thus, without moving a camera, a 2-in. lens can be used to take an establishing shot, a 3-in. lens for a medium shot, and a 4-in. lens for a close-up. To cut from long shot to close-up we can also move the camera forward without changing the lenses. However, the perspective will be different from that obtained with a long focus lens, for the use of a long lens improves the perspective of objects by creating less foreshortening. A short focal length lens, on the other hand, has the advantage of giving greater depth of focus. As the focal length of a lens decreases, its depth of focus increases. In other words, the shorter the focal length the greater will be the depth of the zone of sharp focus before the camera.

Through the diaphragm in the lens the photographer controls the amount of light that reaches the film. Thus exposure is governed under highly different conditions of illumination. However, when the opening of the diaphragm is changed, the field of sharpness of a lens is also changed. For example, a wide-open lens might show in sharp focus objects that fall within an area of from 20 to 30 ft. If the lens was stopped down, the area of sharpness would gradually increase until, when the smallest aperture was reached, everything from 10 ft to infinity would be sharp. Often the added sharpness gained by cutting down the diaphragm is desirable. However, when it is not and when the field of focus must be limited to the main object, the amount of light reaching the film can be controlled by placing a filter



Pathescope Productions.

Sets need not be expensive to be effective.

before the lens. The amount of light reaching the film can also be controlled in some cameras by adjusting the opening of the camera shutter.

Through the use of various lenses and camera positions the cameraman can create a whole series of different effects; he can throw the background out of focus or keep it sharp; he can change the relative size of objects within a picture; and he can control foreshortening.

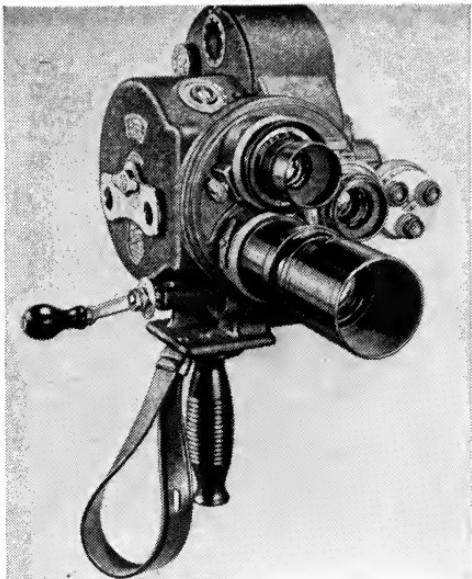
The problem of whether to have a film produced directly in 16-mm or photographed first in 35-mm and then reduced to 16-mm for distribution is one that often faces the business executive about to contract for production. The cost of making the final release prints will be the same in either case, but the cost of production may be represented as considerably cheaper in the case of direct 16-mm shooting.

Whether working with 16- or 35-mm film it is important to remember that the script, the direction, and the quality of lighting and sound are the important elements in motion-picture production. Those who have a tendency to consider the cost of raw film a major item are apt also to feel that good scripts, photography, and direction can be had for a song. The cost differential between 35- and 16-mm raw stock is an important factor only in very low-priced films. In the normal 35-mm production, film and laboratory charges average less than 10 per cent of the entire cost of production. A small saving made through the use of 16-mm raw stock cannot, therefore, be too important an item.

Proponents of 16-mm production often claim portability



Natural locations are often better than studio sets.



35-mm Eyemo. Height 8 in.; wt. 9 $\frac{3}{4}$ lb.



16-mm Filmo. Height 8 in.; wt. 6 lb.

of camera and equipment as an important asset. Yet the new 16-mm cameras which are being designed for extreme accuracy in professional use are almost as bulky as the 35-mm models. A comparison of the 16-mm Filmo with the 35-mm Eyemo, both portable hand cameras of similar design, will show that there is really no great difference in size for comparable equipment.

The end use of an overwhelming majority of nontheatrical films is in 16-mm form, but there are occasions when a 35-mm showing is required. In such cases there is no point in even considering original shooting in 16-mm, even though it is possible to make 35-mm prints from 16-mm black-and-white originals. The grain picked up in the optical enlarging process is so disturbing that this is seldom done except in the rare cases where footage impossible to duplicate has been taken only on 16-mm raw stock.

Kodachrome has given 16-mm production its greatest



Photo & Sound Inc

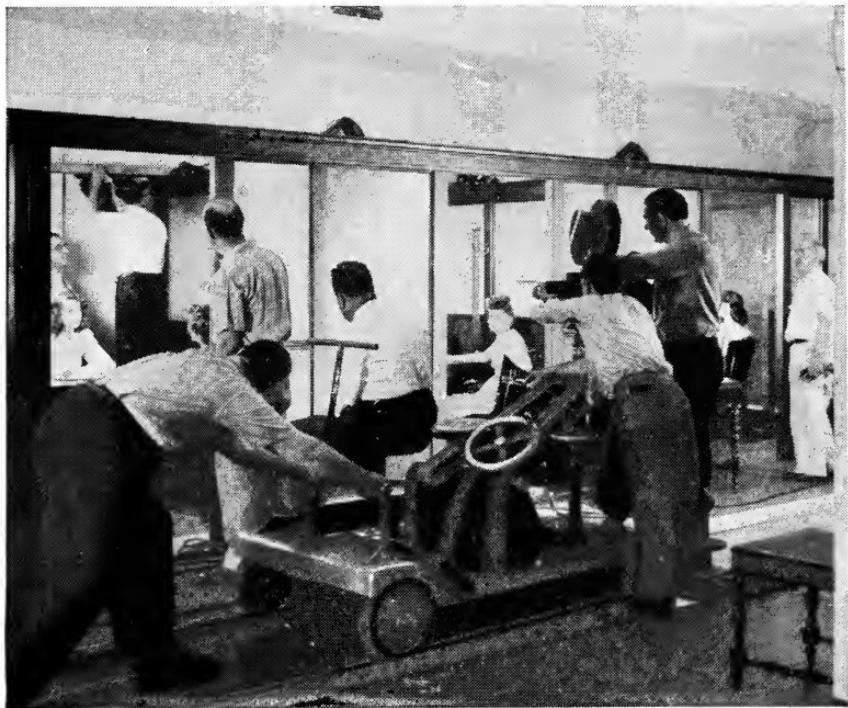
Direct 16-mm production by experts can match 35-mm production quality.

boost. Since this color process and the new Ansco color film is not available in 35-mm form except for slidefilms and still photography, producers have been forced to produce color films in 16 mm except where the budget permits the use of Technicolor. The larger producers seldom use 16-mm film except for color, and even then black-and-white work prints enlarged to 35-mm are often made to facilitate editing.

An important consideration in 35-mm production is that the best technicians are accustomed to working in this size. The film is a little easier to handle, and a slightly different technique is required. In dealing with a medium that requires the joint endeavor of so many specialists it is important that they work in the manner in which they are accustomed. Furthermore, there is a space between 35-mm frames sufficient to permit splicing that will not show on the screen. This is not true of 16-mm film. Special optical effects are better obtained in 35-mm.

It is often claimed that 16-mm production avoids the necessity for using union crews. This is evading the issue; for although it may be easier to get around complications with unions by having the camera crew look like amateurs, the same problems will arise when full crews are used and the electricians must work with plant electricians. Trouble may also develop in other situations when a union representative inquires about the union status of the production during the making of a picture or even later when the finished production is being screened.

Whether 16-mm production will gradually rise to predominance in the nontheatrical field or lose ground and become the exclusive amateur medium that it started out to be depends on future developments in the field and in the design and marketing of new equipment. Equipment in the 35-mm field was designed for professional use. Most equipment in



Pathescope Productions.

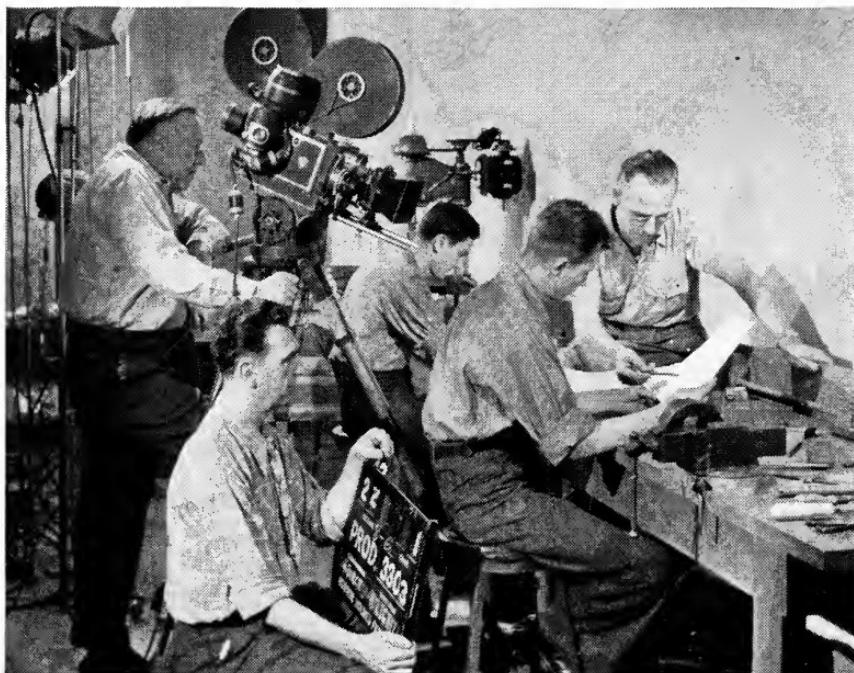
A camera on a dolly. The tracks are down ready for a trucking shot past the open office doors.

the 16-mm field was designed for amateur work. This has placed a stigma on 16-mm production. However, with the greater use of nontheatrical films in business and educational fields, accurate new 16-mm equipment, sturdy enough to withstand professional usage, is gradually being designed. New cameras and sound-on-film-editing apparatus are giving the professional worker equipment that will take 16-mm film production out of the amateur class.

Today it is entirely possible to produce an outstanding film directly in 16-mm. If a producer has clearly demonstrated his ability to do quality work in fields similar to that in which a new film is contemplated, his manner of working

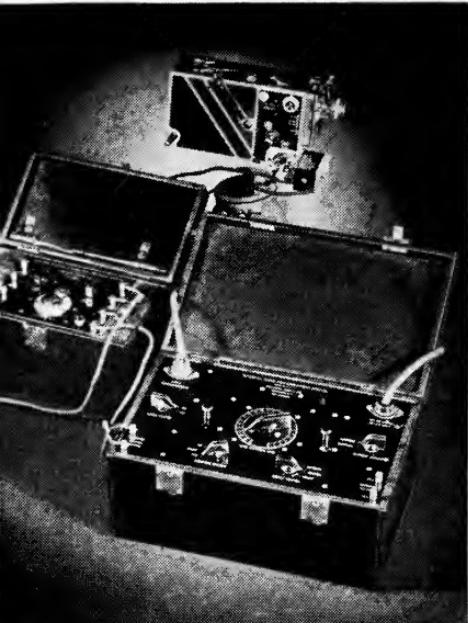
should not be held against him. Film production is an artistic endeavor. All artists do not use the same tools.

Color photography presents many problems not encountered when working in black and white. Exposure is much more critical, and not only the quantity of light must be considered, but its color becomes an equally important factor. Daylight cannot be mixed with ordinary incandescent light. Special film is required for each. Color reflections from objects outside the field of the lens can cast colored tints that look unnatural. Scenes are difficult to match, for the blue sky one day will result in quite different color rendition from the grey sky of the following day. Even during the



Burton Holmes Films.

A Mitchell camera on location. The man in the foreground is holding a slate used for identifying scenes.



Two extremes in Eastman cameras. On the left is a time-lapse outfit which will make exposures as slow as one every 24 hours. On the right is a high-speed camera capable of 3,000 frames per second.

course of a single day the color quality of light changes from hour to hour. Color film is slower than black and white film, making it necessary to use great quantities of light when photographing large interiors. Color photography is work for a specialist. When undertaking production of a color film, be certain to see sample films proving that the producer has met and solved color problems similar to yours.

Unusual types of motion-picture photography, such as ultrahigh-speed sequences requiring as many as 3,000 exposures a second, photomicrographs, and stop-frame work, are usually taken by specialists who serve all producers. Highly specialized equipment is required, and a great deal of experience is necessary to obtain proper results.

For interior photography requiring sets, most producers rent one of the large service studios that are available in New York, Chicago, and Hollywood. These studios can be rented on a daily basis, fully equipped with lights, cameras, and sound apparatus and including certain standard sets.

Operating personnel can also be provided if the producer does not wish to bring a complete crew. However, the producer usually provides at least his own director and cameraman. These studios are all highly unionized, and even a still photographer operating in them must carry a union card. A few of the large producers operate their own union studios. Nonunion producers sometimes have small studio facilities which they rent to other producers who do not employ union crews.



Films for Industry.

Making reproductions such as this from 16-mm frames is difficult. It is always advisable to make still photographs of important scenes in a film.

The role of the cinematographer is a hard one. He is constantly faced with new and difficult conditions. He must know exactly what each scene is endeavoring to express on the screen. He must be ready to take direction, yet willing to assume the responsibility when the finished print does not tell the proper story. He faces a continual mental strain, for he cannot see exactly what he is producing. Sometimes days and even weeks elapse before he sees the result of his work. A little abrasion on the film, a slight misadjustment of the lens, or an infinitesimal light leak may spoil important and sometimes irreplaceable footage. The cinematographer must be continually on guard, minutely aware of every action within, around, and before his camera.

ANIMATING THE INVISIBLE

EVERYONE IS familiar with the cartoon-type animation developed by Disney and others for mass entertainment, but technical animation as used in the nontheatrical field is new to many. This technical animation is the motion-picture technique through which the film presents facts that cannot be photographed direct from life. The basic principle of exposing one frame at a time is the same in both technical and cartoon animation, but the mechanics of production vary considerably. In cartoon work there is freedom of movement, as most of the action is relatively fast. Technical work is precise, and extremely slow movements require infinite precision. Cartoon work might almost be called an art and technical work a science—there is that much difference. As a matter of fact, the different techniques required make it unusual to find an animator who can work equally well in both fields.

All animation requires the same basic tools. First in importance is the camera and stand. The camera exposes one frame at a time with a film movement that transports and stops the film at exactly the right place each time. This constant starting and stopping requires a much more accurate film-registration mechanism than is necessary for standard-speed operation where the film moves in a steady cycle. For special effects an animation camera runs equally well either backward or forward and has an accurate shutter which can be gradually closed to produce fades. A carefully calibrated focusing arrangement is provided, and there is a counter to keep a record of the frames exposed.

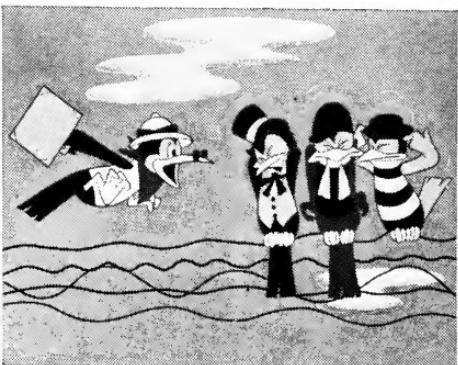
The camera stand provides complete control over panning



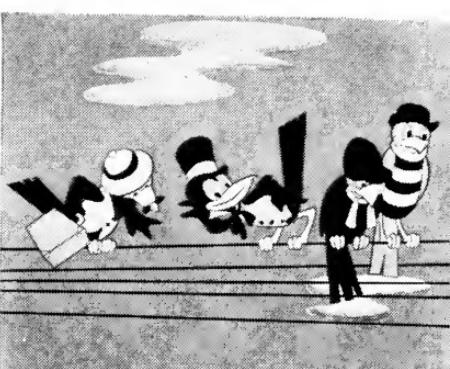
1. Stills from an animated motion picture used by the Bell System to help reduce the peak load in resort areas.



4. But when vacation time comes, tourists flow into resort areas, often increasing the population many times.



7. The birds roosting on the wires take a terrible beating from the incessant flow of conversation.



2. The film develops the theme that birds like to roost on wires and listen in to a normal flow of conversation.



5. Everyone wants to use the telephone and the majority make calls in the early evening after a day of play.



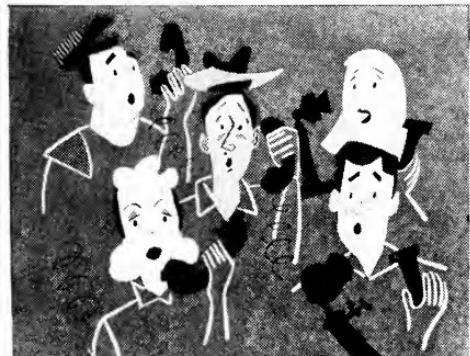
8. So a bird speaks up and advises telephone users to make calls when possible before 6 or after 9 P.M.



3. The operators at small-town telephone exchanges handle a normal flow of telephone traffic quickly and efficiently.



6. Operators cannot handle all calls, as equipment has not yet caught up with the demand for service.



9. "Leave the roosting on the wires" to us birds! is the parting thought. Film produced by Patescope Productions.



Willard Pictures.

A typical animation stand. The operator's hand is on the platen as he watches the camera. A 16-mm camera is shown, but a 35-mm camera is easily substituted for standard-size shooting.

and trucking movements. For panning, the art work is moved instead of the camera being moved as is the case in live-action photography. A peg bar, an exact duplicate of those on each animator's stand, holds the art work in alignment under the optical center of the camera. A series of masks registered with these pins delimits the field of the camera at various heights. A glass platen holds the cells firmly down on the background. This is important, for when several cells are used over a background, considerable pressure is required to keep the cells and art work in firm contact. If they are not held in close contact, the lines on the upper cells will form shadows on the background.

The use of transparent acetate sheets called "cells" is the basis of most animation, whether it is technical or cartoon type. These cells are usually about letter size and are as



National Safety Council.

Cartoons are effective in slidefilms as well as in motion pictures.



National Film Board, Canada.

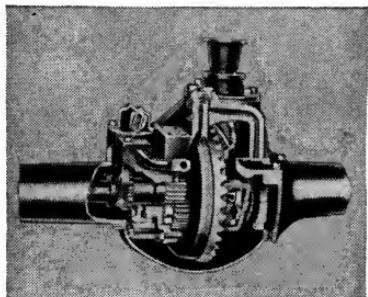
An animator at work. Note the peg boards with background and cell overlays and the mask for delimiting the camera field.

nearly colorless as possible. Drawings on the cells can be made to animate, making it unnecessary to redraw the background each time. The combination of different cells incorporating various art techniques such as line work, airbrush effects, and opaque designs can produce innumerable effects.

An animator's work requires much tracing of material from work sheets with slight changes in position from previous drawings. The animator's table is equipped with a light box to throw light through the art work from underneath. Above the light box is a peg bar matching to within a thousandth of an inch all other peg bars, including the one on the camera. This permits instant registration of all drawings for the paper and cells on which art work is done are

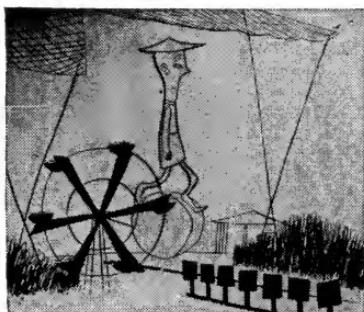
punched with holes which fit tightly over the pins. Thus, several artists can work on different parts of the same picture at the same time. The light box and pins on the animator's table are mounted on a revolving disk which permits the animator to swing drawings into different positions to facilitate his work.

Animation more closely resembles factory production than any of the other types of motion-picture work. It requires mass-production techniques, since art work for 14,400 frames must be supplied to complete a 10-minute film. Animation is done in so many different ways and for so many purposes that it is not possible to describe the types clearly by any generally accepted terms. However, the following broad classifications will help in some measure to explain various animation types.



Ford Motor Co.

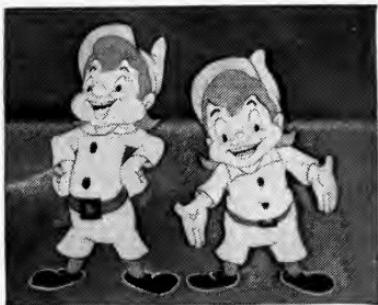
Realistic Animation—as close an approach to photographic texture as possible. Still photographs are often used in such work.



United Productions of America.

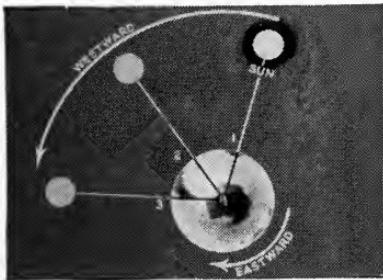
Stylized Animation—subjects are simplified as much as possible without losing their identity.

Cartoon Animation—a stylized type similar to the usual theatrical animated cartoons.



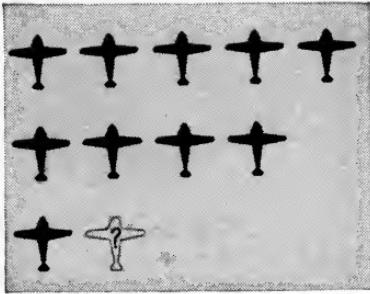
Soundmasters.

Schematic Animation—simplification of the action of a situation in a diagrammatic manner to present its basic principles.



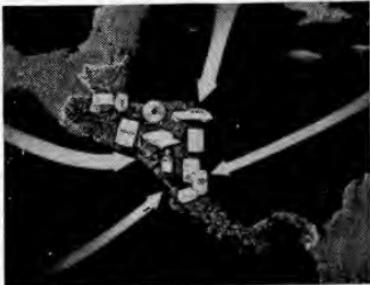
U. S. Navy.

Diagrammatic Animation—a simple form of schematic animation, especially presentation of charts, graphs, etc.

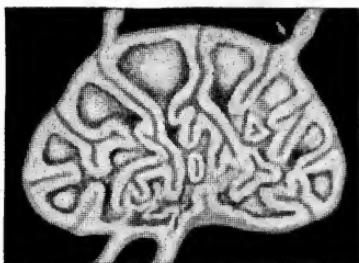


Filmfax.

Map Animation—maps, charts, and globes used as a basis for lines, arrows, and symbols.



Ency. Brit. Films.



Ency. Brit. Films.

Medical Animation—a type of work requiring artists of specialized ability.

For cost-estimating purposes animation can be broken down into three progressively more difficult production problems. Approximate prices are indicated for 35-mm black-and-white-footage for the type of animation generally used within these groups. Diagrammatic type animation usually falls in the cheaper category; cartoon work in the most expensive. Other types of animation may be done in any of the three price classifications which follow:

1. Diagrams, maps and simple drawings where lines, arrows and lettering move from point to point, appear and disappear. Cost \$3 to \$7.50.
2. Airbrush or other full-tone drawings in which movement is accomplished by the use of overlays in cycles. Cost \$5 to \$10.
3. Cartoon figures and other objects where individual drawings must be made for each frame to show progressive stages of movement. Cost \$10 to \$25.

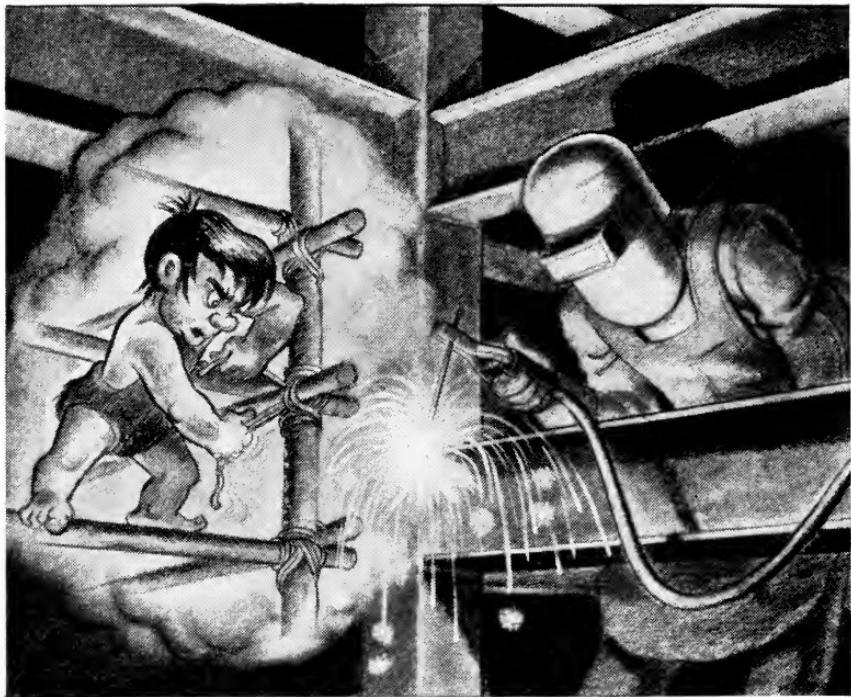
A short fully animated cartoon sequence is developed in the following way. The script calls for a cow that talks. The head animator sketches several different types of cows and obtains approval on one. He then roughly draws in pencil on thin white paper a series of pictures of the cow in the necessary action, each drawing representing advancing stages of the action. Perhaps only every fifth or sixth frame is drawn, and an assistant, called an "in-betweener," fills in

the intermediate steps. These roughs are then photographed on an animation camera and projected to test the smoothness and character of the movement. Necessary changes are made, and the drawings are passed along to another worker who cleans them up, smooths out lines, and fills in necessary details. The paper drawings now go to the "inkers," usually girls. They place a transparent acetate cell over the paper drawing, keeping everything in registration on peg bars, and trace the animation onto the cell with pen and india ink. The cells then go to "opaquers" who fill color or various tones of grey into the picture areas. The paint is applied to the reverse side of the cells so that the ink outline will conceal any unevenness in the edge of the opaquing. During all this time a special artist has been painting a background to go beneath the cells. A camera sheet is now written, showing position of background and the number and order in which the cells are to be photographed.

The process just described was a simple one calling for the use of only one cell above the background at any one time. Often from two to five cells are used one on top of the other, each carrying independent parts of the action. For example,

A typical camera sheet showing how animation is planned and photographed. Abbreviations are Ft., feet; Fr., frames; and BG, background.

T.	FR.	ACTION	CELLS			BG.	FRAMES		CAMERA
0	0	Map-with products	1	3	4	C	160		Run
		-Ships at port							
		not moving							
2	6	Products out	1	3	4	C	198	2/	230
			1	4	C		198	X	230
		Ships move	{	{	{				
			{	{	{				
4	6	Ship explodes	1	5	4	C	390		
			1	6	4	C	391		
			1	7	4	C	392		
5	10	Map only			4	C	410	2/	442
		Flow lines in		8	4	C	410	X	442
			{	{	{				
			{	{	{				



Lincoln Electric Co.

Animation can combine cartoon and realistic treatment.

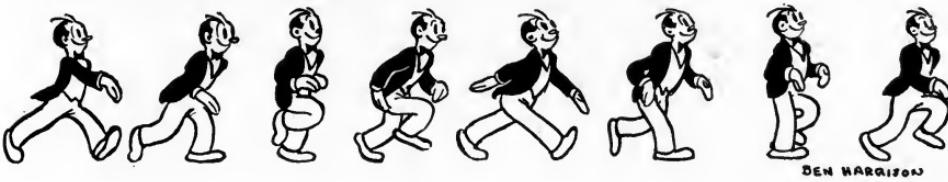
suppose that the cow scene also calls for rain. Then a series of rain cells would be drawn and placed on top of the cow cells. If action such as waving grass were required behind the cow, then the grass cells would be photographed behind the cow cell, and a camera setup would then be background, grass cell, cow cell, and rain cell.

The rain and grass would be made on separate cells from the cow to permit the use of cycle animation. The cycle technique is used in both cartoon and technical animation to save an enormous amount of art work. It requires that a series of cell drawings start and end with the same drawing. Thus by photographing the same sequence over and over

again continuous action is obtained. Through the use of sixteen cells a cartoon figure can be shown walking for as long as desired by repeatedly photographing the cell sequence from one to sixteen. In order to make it appear as if the figure is going somewhere, a long picture is gradually moved along from side to side in the background. The waving of a piece of grass could be made a continuous action by the use of three cells, No. 1 leaning to the right, No. 2 straight up and No. 3 leaning to the left. They would then be photographed 1, 2, 3, 2, 1, 2, 3, etc. In actual practice, cycle sequences usually contain more than three cells.

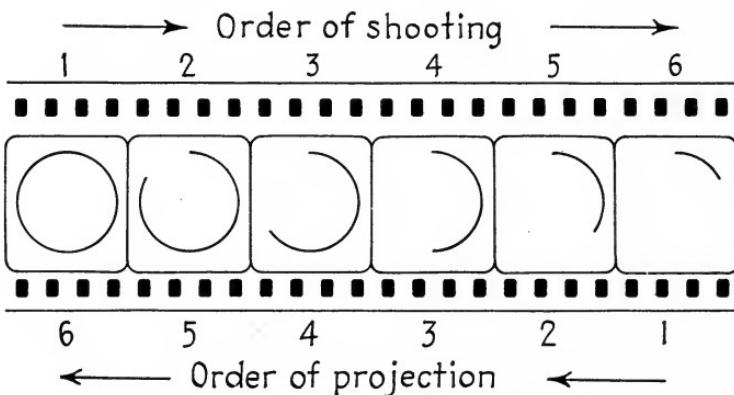
The cycle technique is but one of the many short cuts in animation. In order to avoid the costly and tiresome necessity of redrawing each individual cell, all kinds of tricks are used. This is especially true in technical animation where, in order to secure smooth movements, extremely clever procedures are devised to suit the particular needs of the scene.

To save art work, individual camera setups can be photographed two or even three times without making a change. Thus the picture changes on the screen only twelve or eight times a second instead of the usual twenty-four. In the illustration of the man walking, normal speed can be obtained by photographing the eight pictures shown 1, 1, 2, 2, 3, 3, 4, 4,



etc., instead of drawing an in-between picture in each case to bring the cycle to sixteen drawings. Although the action secured by shooting each picture several times is not so smooth as if the art work had been changed with each frame, it is often satisfactory and much less expensive.

Much technical animation is produced by the chip-back or wash-off method. In this work the camera is run backward, and therefore the last picture in a sequence is photographed first. With each succeeding exposure a minute part of a line or area is either chipped or washed off its cell base until the entire action has been photographed in reverse. After the film has been processed and is run through the camera in normal fashion, the line or area that was chipped back will smoothly develop on the screen. This saves an immense amount of art work and at the same time produces smoother work than could ever be obtained by actually making a series of independent drawings.



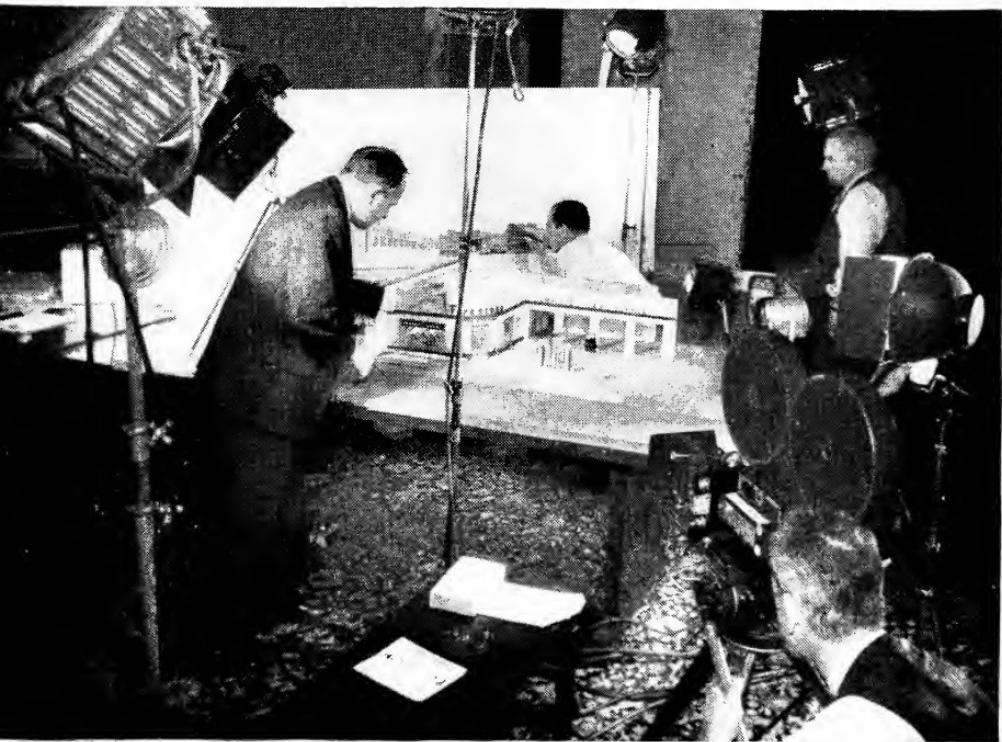
To make a circle develop on the screen by chip-back animation the complete circle is photographed first. The camera is then run in reverse, and a small section of the circle is chipped or washed off its acetate cell support between each exposure. When the film is processed and projected, the circle develops on the screen. For slow smooth action the circle might be chipped back in 24 or more exposures.

Instead of making innumerable drawings, models are often used under the animation camera. They can take almost any form from three-dimensional models which revolve on an axis or otherwise move to flat cutouts which show move-



Springer Pictures for Kenwood Mills.

Models can be used to reconstruct the past or to preview the future in either slidefilms or motion pictures.



ments in cross section. Models can be animated in the same manner as art work. A separate exposure is made for each slight change in position. In the movement of models precise action is often obtained by a geared movement. Each setup requires its own special collection of gears, some of which will permit action in several directions. The gears permit infinitely small regular movements where extremely slow screen action is required. In instances where particularly complex action is involved, cell animation and model work may be combined.

In business-film production, models are used to show with considerable realism things that cannot actually be photographed due to their size and location or because they no longer exist or are envisioned for the future. The most impressive commercial production ever made based completely on models is the General Motors film "To New Horizons." This is actually a view of the world of tomorrow photographed at the *Futurama* exhibit at the New York World's Fair. Many films present through the medium of models such sequences as views of early plants, original machinery, basic mechanical principles, and plans for future expansion.

Puppets and miniature sets provide an interesting screen approach, especially valuable when producing material for audiences of children. Puppets have the advantage of giving three-dimensional reality without becoming personal. It is thus easier for children to project themselves into a situation. Puppet figures of people and animals may be moved by stop-frame photography or suspended from and moved by strings. Marionette shows on film can be made much more convincing than actual marionette productions, since special takes can be made for each scene, permitting the use of only the strings required for the special movement that is being photographed. These strings may be specially colored



Alexander Film Company.

Puppets offer a novel way to tell a film story.

to blend with the background and become almost invisible.

In animation and model work it is usual to record the sound track first. The complete track is then measured exactly so that the animation can be photographed in precise synchronization with the sound. Accurate camera exposure sheets are written which outline the complete action and record the setup of each frame, showing the background and the number and position of cells that are to be superimposed over it. The animation photographer exposes his film in accordance with the sheet so that it will match the sound track exactly.

The uses and applications of animation are too numerous for us to explore here. Those things which cannot be seen through direct photography can be presented through animation. Dissolves can be made from straight photography to animation to explore beneath the outer shells of objects and show their vital functions. Thus, animation serves to show that which is known but cannot be seen.

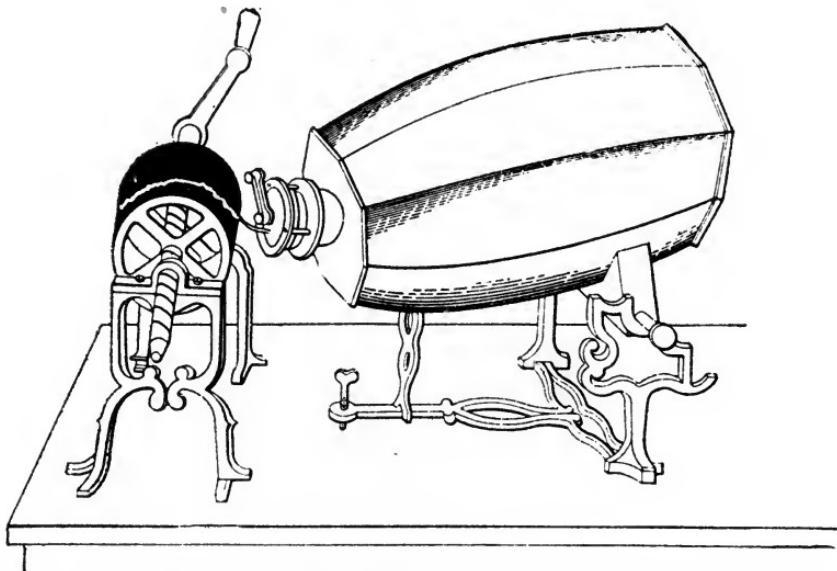
Animation is highly specialized work. Producers are apt to claim that they can do any type of animation, but in actual practice they can seldom deliver outstanding footage when dealing with types of animation in which they are not experienced.

Chapter 13

SOUND ON FILM

THE TECHNICAL aspects of film recording, when in the hands of a competent producer, are not a source of great concern to the business executive. Excellent recording is expected and generally produced as one of the fundamentals of modern film production. The quality of film recording is almost entirely governed by a producer's ability to select proficient talent, music, and sound effects and properly to direct recording to produce the desired effect. It is, however, interesting to understand the process by which sound is recorded on film.

The first device ever constructed for making a record of sound, the Phonautograph of 1857, graphically explains the



The Phonautograph of 1857 which recorded sound for the first time.

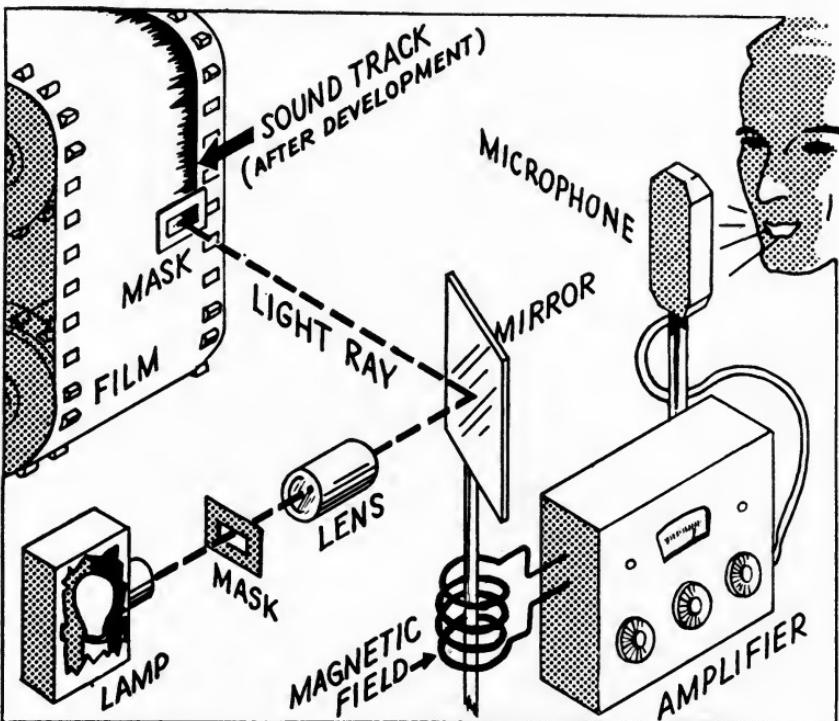
principle of all sound recording. At the end of the sound chamber of this device there is a diaphragm. Geared to the center of this diaphragm is a needle which lightly contacts a cylinder covered with lampblack. When someone talks into the sound chamber, the diaphragm vibrates. This activates the needle which traces a wavy line on the blackened cylinder as it is slowly turned.

Instead of the levers and needle of the Phonautograph, the modern sound-film system picks up energy transmitted through the microphone and relays this energy through radio detectors and amplifiers to a light valve. The valve transforms the radio waves into light impulses which are projected on a moving piece of film. After the film is developed and printed, the sound track is complete. One type of sound track now in common use looks very similar to the early mechanical sound recordings of the Phonautograph.

Years before the talking picture became a reality, the telephone and radio industries established reliable procedures for picking up and transmitting sound. It was the development of light valves that made sound on film practical. The first reliable light valve was perfected by the Western Electric Company, a subsidiary of the Bell Telephone System. This valve consists of two wires stretched tightly on a frame which holds them so close together that light can barely pass between them. Placed in the center of a magnetic field, these wires vibrate in synchronization with the sound waves that pass through them. A steady light directed through the valve falls on film which is moving at 24 frames per second. The opening and closing of the valve produces a light image on the film varying in density with the tonal value of the sound. This type of track is known as "variable density" recording.

Another type of light valve is used in "variable area" recording. This valve consists of a loop of metallic ribbon

to which a small mirror is attached. A ray of light is projected on the mirror which reflects the light to the film. As impulses from the microphone pass through the loop, the mirror twists in a magnetic field and plays light over the moving film. The area of the film that is exposed varies in direct proportion to the intensisty of the sound impulse.

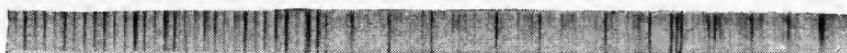


In variable-area recording a constant light is projected through a mask and a lens to a mirror which reflects it onto film that is moving at standard sound speed. When sound waves reach the microphone, they are converted into electrical impulses and transmitted to an amplifier which increases their intensity sufficiently to create a magnetic field. Variations in the flow of current cause the mirror to turn in the field in direct relationship to the sound waves reaching the microphone. Light reflected by the moving mirror creates a sound track of variable area on the film.

Whether films are recorded by the *variable density* or the *variable area* method, they are projected on the same projectors and in the same manner. The basis of the sound head in the projector is the photoelectric cell. This remarkable device has the property of transmitting current in direct



Variable-area sound track.



Variable-density sound track.

proportion to the amount of light that falls upon it. When sound track is run past the sound head, a small beam of light is projected on it. The modulations of the track interrupt this beam of light and thus govern the rays that fall on the photoelectric cell. The electric impulses that the varying light generates in the cell are greatly amplified and travel to the loud-speakers.

Under normal conditions the difference in the quality of sound reproduction provided by the *density* and *area* methods of recording are negligible if, in fact, it is possible for the human ear to ascertain the difference. One advantage of the density recording is that small particles of dirt on the track do not cause so noticeable a disturbance as they do in area tracks. Another advantage is that when cuts are made, the "bloop" (the noise caused by the splice crossing the track) can be more nearly eliminated than is possible with area track. However, density track, which relies on photographic halftones, requires much more accurate laboratory processing than area track which requires only opaque and translucent film.

The majority of business films are of the narration or



Each dial on this console controls the intensity of sound from microphones, disk records, or sound tracks which the operator is mixing to match the film being projected.

voice-over type. After the film has been edited in silent form, it is projected in a sound-recording studio, where the narrator reads the script as the film is being projected. The film on which the recording is being made and the film projecting the picture are run synchronously so that later they can be assembled and printed from parallel starting marks to duplicate the voice of the narrator in exact relation to the picture as it was projected.

When films of a highly technical nature are being produced, the narration is sometimes read "wild." That is, it is

recorded without projecting the motion picture. After the track is processed, the photographic sequences are then edited to fit the sound, thus giving perfect synchronization. This recording method is generally used for animation work. The animation is then designed and photographed to fit the sound exactly. In producing musical films the music and singing are first recorded and then a print is used to play through loud-speakers on the set so that singers and dancers can keep their lip and body action in exact time with the music. This permits singing to be done by a "ghost" singer for a star. Even when the star is doing his own singing, he can mouth the song without distorting his features as is often necessary in actual singing.

The sound-recording studios that are used, whether they be one of the large service studios or the producer's own studio, are scientifically designed from an acoustical standpoint and are free from outside noise. The same conditions prevail in studios where dialogue is recorded. However, getting good sound recording on location presents a quite different problem. Interference is encountered from passing automobiles, airplanes, wind, and animals as well as innumerable forms of human interference. Furthermore, on interior locations great preparation and care must be taken to ensure proper acoustics. Various forms of sound baffles must be hung and tested to ensure quality sound reproduction. Direct sound on location can easily double the cost of production.

When music is used, it should augment the subject matter of the picture. It is of immense value in creating moods. The audience is not usually conscious of music when interesting action is taking place on the screen. The producer's problem will, therefore, be primarily to select music that will not be out of spirit with the mood of the picture. This is very difficult when short scenes change from one subject to another.

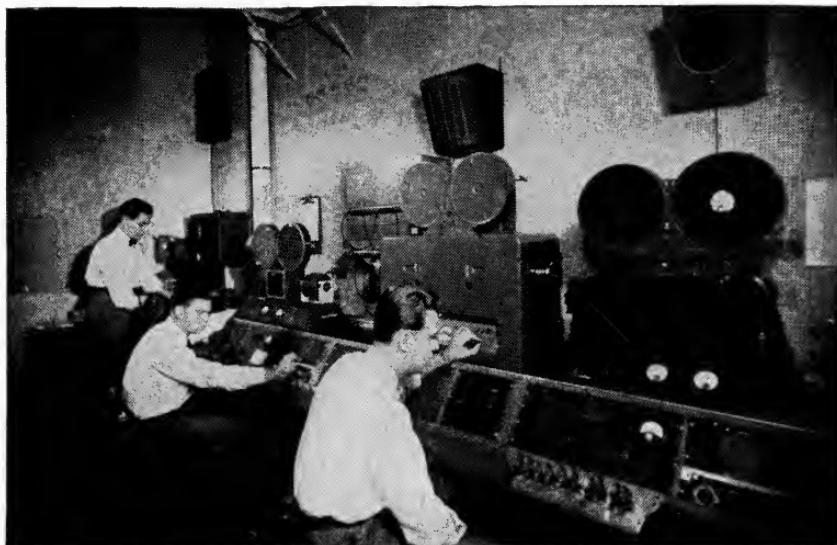
and each suggests a different musical setting. In such cases the prime fault may be found in the original conception and subsequent editing of the picture. If smooth musical transitions cannot be made, the picture and idea transition are probably basically poor in themselves.

There is an increasing trend toward the use of special musical scores for industrial films that are to be used for public relations. Although this may increase the cost of a two-reel film by several thousand dollars, it gives the film a quality and fullness that can be achieved in no other way. The cheaper and more usual method of providing a musical score is to choose the most suitable stock music obtainable from one of the orchestral-film libraries maintaining a selection of music already recorded on film or on records. Suitable numbers to fit the various sequences of the film are assembled and blended one into the other under the narration. It is important to see that proper clearances are obtained for each number used unless it is clearly established that they are in the public domain.

Stock music recordings can be cut and edited to fit a given pictorial sequence in much the same manner that picture footage is edited. This is, however, the job for a specially trained musician who must have a knowledge of musical composition as well as film editing.

Most pictures are re-recorded before they are finally released. In this process, called "dubbing" or "mixing," a number of sound tracks are combined to form a new track. A basic setup might consist of a voice track, two music tracks, and special-effects track. Each track is carefully assembled and spaced out with leader so that when they are all started simultaneously and run synchronously with the picture, all the component sounds will occur at the proper time. All of the sound channels are connected with a film

recording unit, and each is governed through a dial on a console which adjusts its volume. It is the work of the mixer to follow the picture and with the aid of a footage meter and cue sheet to bring in each track at its proper time and fade it out when it is not required. He can blend one track out while another comes in and can, in fact, combine the tracks in any degree of relative intensity.



Reeves Sound Studios.

Various types of sound recorders

While recording is highly systematized, there is one hazard in its application to nontheatrical motion pictures. Most films, although recorded on 35-mm film, are reduced to 16-mm size for distribution. The smaller film and the projection equipment with which it is used have not the high fidelity of standard-size film. Recordings should, therefore, be made with their ultimate usage in mind. Subtle sounds and tones that, if lost in reproduction, would spoil the desired effect should be avoided.

The nontheatrical 16-mm sound projector has a sound-reproducing capacity of only 500 to 5,000 cycles. This permits reasonable duplication of the human voice which has a normal conversational range of from 500 to 3,000 cycles, but music and sound effects which sometimes reach a height of 35,000 cycles suffer considerably in reproduction. In adjusting the sound system to reproduce voice at a suitable level, background music, when present, is sometimes completely lost. In a recent series of training films produced by a theatrical producer, music was used throughout the pictures. It was dropped in level beneath the voice of the narrator but surged up whenever there was a short pause in the script. In 35-mm form these pictures were smooth flowing and harmonious, but in 16-mm the music behind the narrator became inaudible. The result was that instead of surging up in the pauses the music cut in sharply every time the narrator stopped for a breath. The effect made the film ridiculous.

The sound in nontheatrical motion pictures should be simple in structure. Narrators should be chosen who have crisp, well-defined voices instead of the mushy kind whose words run one into the other. Music and sound effects should not be too subtle. In fact, throughout the production the greatest success will be gained by straightforward presentation of well-thought-out ideas. Great dramatization, whether it be in action, photography, or sound, has many pitfalls. Even when so well done that it carries the spirit of the story, it may lose much of its impact in 16-mm projection.

In film recording it is common practice to make a recording on a phonograph record simultaneously with the take. The advantage of this procedure is that an immediate playback can be made to check the film recording. It is also a safety measure; for if the film is ruined in the laboratory processing or in handling, a new film recording can be made from the

record. Usually when these records are played back to check the recording, they are reproduced through high-fidelity pickup and amplification systems which duplicate as nearly as possible the live sound. An interesting alternative is to play the record using a sound system adjusted as closely as possible to duplicate the reproduction quality of 16-mm film recording.



Recording the sound slidefilm, "Strategy in Selling," for The Dartnell Corporation.

Voice, music, and sound effects need not form a continuous series of sounds. Pauses, especially in training and educational films, give welcome relief and offer a valuable change in pace. Music, if used beneath dialogue, need not be used throughout a film. In a recent film on salvage the initial scenes in the picture had music beneath them helping to create the feeling of urgency and patriotism. As soon as the picture shifted to the actual scientific application of the principles of salvage, the music was dropped out completely.

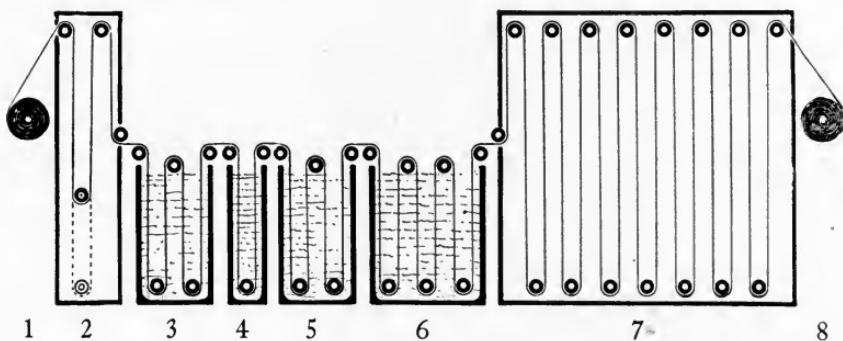
The abrupt change added a matter-of-fact approach to a scientific subject.

Much of the comment on "sound" by the layman will in reality be directed toward the script. When an audience does not like the "sound" in a film, they very probably do not like what the screen voice is saying. The highest skill of actors and narrators cannot greatly improve a poor script. On the other hand, a poor voice can ruin a good script. Over-emphasis on the sound for a film may well defeat its own purpose by making the film into nothing more than an illustrated lecture. If the greatest value is to be obtained from the audio-visual medium, sound should be used to emphasize the picture and not permitted to steal the show.

THE LABORATORY

MOTION-PICTURE processing is an operation requiring large and expensive equipment which must be kept constantly in use for economical operation. Few producers, therefore, maintain their own laboratories. Most processing is done by the large service laboratories serving anyone who has film to be developed and printed.

The size and big-business aspects of the modern laboratory should not mislead anyone into believing that an extremely complicated process is being performed. Actually it is just snapshot developing on a large scale. The fundamentals of developing and printing motion-picture film are the same as those used by the amateur photographer who



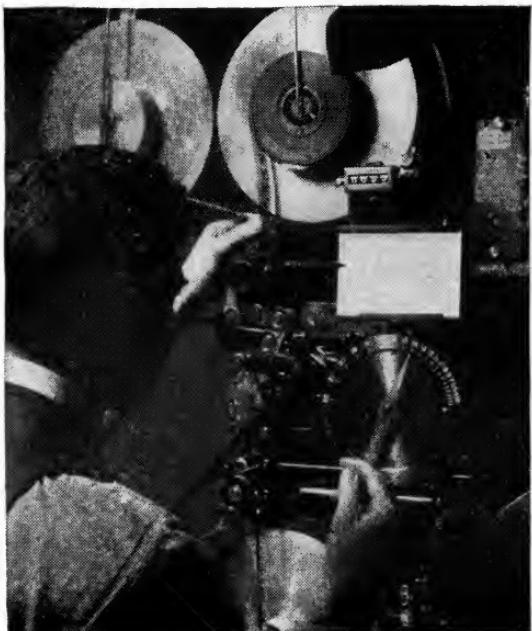
Film travels through a developing machine in the following order: (1) undeveloped film, (2) take-up cabinet, (3) developer, (4) rinse, (5) hypo fixative, (6) wash, (7) drying cabinet, (8) processed film.

develops and prints his own still pictures. Instead of dipping film into various solutions by hand, the motion-picture laboratory has machines that keep film moving steadily through developer, rinse water, fixing solution, and wash water and then into a drying cabinet from which it emerges completely

processed. When film is not moving through a developing machine, the machine is kept threaded with blank leader constantly ready for use.

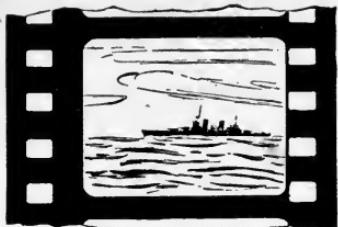
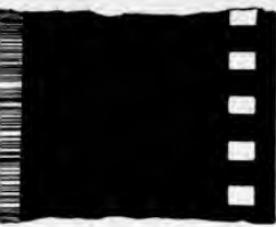
Sound track is developed in the same manner as picture negative except that different developing solutions are sometimes used. The sound engineer specifies the manner in which the film is to be developed and printed. These specifications are rigidly maintained by the laboratory.

After a picture negative is processed, it is examined before a light box by a timer who judges the density of each scene and decides how much light will be required for printing. Five and a half frames before each scene he cuts a notch in the side of the negative which is called a "light." On a card he indicates with a number the degree of exposure to be used in printing the scene. The negative is then threaded in the



A Bell and Howell 35-mm continuous printer. The operator changes the dial to adjust the intensity of the printing light for each scene.

Pathé Laboratory.



Track print.



Picture print.

Combined print.

printing machine. Negative and unexposed raw printing stock are run together through the printing machine at a constant speed. The degree of exposure is governed by adjusting the intensity of the light that is projected through the negative to expose the raw stock. As the negative runs through the machine, the notches on the side of the film indicate when a change in the degree of exposure is required. After the film is printed, it is developed in the same manner as the negative except that a positive developing bath is used.

In making combined prints, incorporating the sound track on the same film with the positive picture, a film is first run through the printing machine and the picture image is printed. During this process the strip that is reserved for the sound track is masked off along the side to keep it unexposed. The film is again run through the printing machine, this time with the picture area masked off while the sound track is printed along the edge. When a number of identical prints are to be made, there are special machines which print picture and track at the same time.

The sound track is printed on film 20 frames in advance of the center of the picture that it matches. This is to allow the track to appear under the sound head of the projector when its corresponding picture frame appears on the screen. This distance between sound and picture is required, since in projecting the picture an intermittent movement stops each frame while it is thrown on the screen. When the track

reaches the sound head, it must be moving continuously and smoothly. In making 16-mm prints the track is advanced 26 frames, as this is the distance between aperture and sound head in the smaller size projectors.

Optical reduction printing machines are generally used in making 16-mm prints from 35-mm negatives. However, when large runs are expected, a duplicate combined negative is made in 16-mm size so that prints can be made by contact with one operation. For greater efficiency two prints are sometimes made side by side on 32-mm stock which is split after development to form separate prints.

Laboratories generally produce remarkably clean and accurate work. However, from time to time trouble will arise. In motion-picture work scratches are the bane of the film worker's existence. A white scratch showing on the screen usually denotes a scratched negative; a dark scratch on the screen indicates a scratched positive. Dirt on the negative will show up as white blotches on the screen, whereas dirt on the print will result in dark screen blotches. Negative dirt can usually be removed through cleaning. Scratches on the support side of a negative can be removed by special processing. However, scratches on the emulsion side of a negative can seldom be removed.

An original negative represents a substantial investment; therefore, it is a safe policy to have a fine-grain duplicating print struck off immediately after the negative is developed. This print can be kept on file; and in the event of anything happening to the original negative, a duplicate negative can be made from the fine-grain master. In storing 35-mm prints it should be remembered that fire laws are very strict (and rightfully so) regarding the storage of nitrate film. Such film is highly inflammable; and after it becomes aged and well dried out, it becomes explosive when exposed to open flame.

or excessive heat. Any motion-picture film that is stored in a factory or office should be either kept in a special vault approved by the Fire Department or made on safety stock.

Kodachrome duplicates can be obtained directly from the Eastman Kodak Company. However, many producers prefer to have their own laboratories print the Kodachrome stock and have Eastman do only the processing. This gives a producer closer supervision of the printing process and permits special color correction and printing back and forth from two originals to make dissolves direct from original footage. Ansco color is handled in a similar way. The Technicolor Company maintains exclusive control over all phases of their printing and developing and even requires that cameras and photographers meet their approval.

The cost of release prints varies with different laboratories and with the amount of footage ordered. For rough estimation purposes covering the use of film in limited quantity the following prices may be used:

35-mm nitrate release prints, 3 cents per foot

35-mm safety prints, 4 cents per foot

16-mm sound prints, either reduction or contact, 3 cents per 16-mm foot

Kodachrome sound film prints, 12 cents per 16-mm foot

The first print from a negative that has not been timed costs approximately 1 cent more a foot than the above prices. The prices include only raw stock and processing but do not include reels and cans. Inspection and supervision of laboratory work in order to ensure quality processing takes considerable time. When producers supply prints, they are, therefore, entitled to a fair margin of profit over the price that they pay the laboratory.

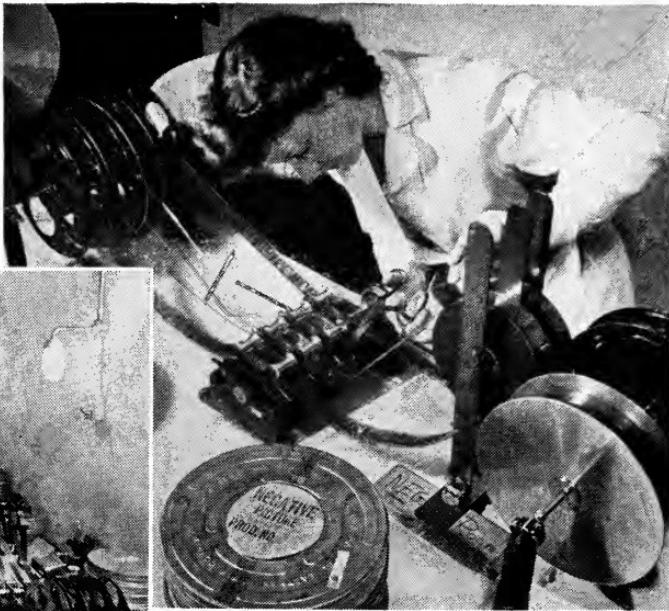
THE FILM IS EDITED

THE MOTION-PICTURE editor's work would simply be a matter of assembling and splicing together scenes if it were possible to plan a picture completely and accurately and then photograph it in exact accordance with the plans. However, in shooting a picture considerable extra footage is run before and after the action called for in the script. The same scene is usually photographed several times, and additional material not envisioned in the script is taken. To build all of this material into the best possible motion picture is a job requiring a fine artistic sense. The editor must understand the sponsor's viewpoint; and before a film is approved, editor and sponsor often work closely together.

In the days of silent films an editor's work was relatively simple—a few feet more or less in a scene made little difference. With the advent of sound extreme accuracy became very important, for the loss of even a few frames in either the picture or track will throw an entire reel out of synchronization. The problem of keeping sound and picture in synchronization becomes, therefore, one of the editor's chief concerns. Whereas there is only one sound track accompanying the completed picture, there may be as many as five or six separate tracks that must be worked with during the editing process and put in order for the final re-recording. These tracks consist of separate film recordings of dialogue, one or more of music, and one or more of sound effects. In some instances, these tracks are made synchronously with the photography and must be kept in "sync" throughout the entire editing process. In the majority of nontheatrical productions voice, music, and effects are recorded inde-



Ted Nemeth Studios.



National Film Board, Canada.

Film is assembled in a cutting room. Track and picture are matched with the aid of synchronizers (above).

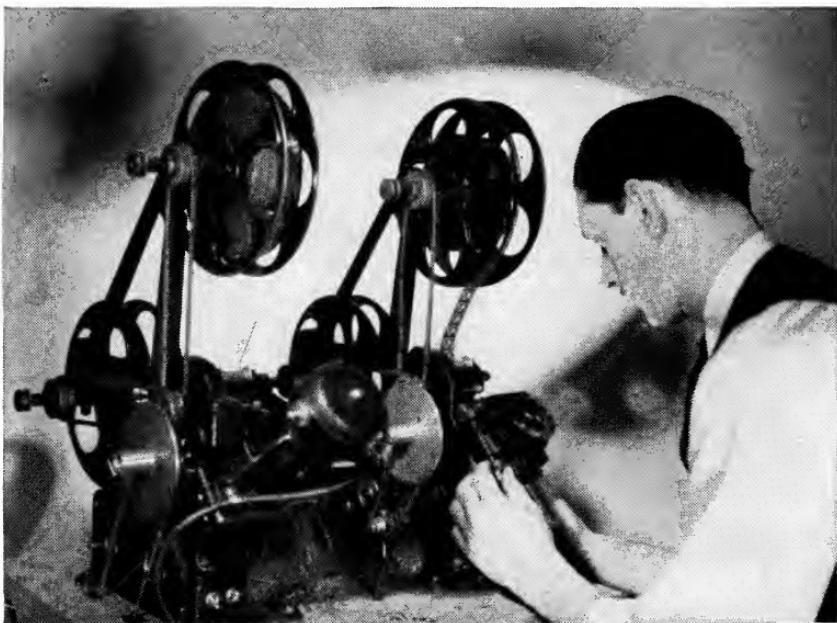
pendently of the photography and are later carefully cut and arranged in relation to the picture.

The film editor has a number of special tools to make his highly exacting work possible. The simplest and most basic are the rewinds and the splicer. The rewinds, as the name implies, are used for transferring film from one reel to another. A splicer is used to hold two pieces of film firmly together while they are being cemented. With each splicer there is a small scraper for removing the emulsion from the film support where the films overlap. One of the pieces of film must always be scraped so that the two pieces may be cemented together. This is necessary, since no cement has yet been devised that will hold over a photographic emulsion.

To keep the picture and various tracks in synchronization while they are being worked with, a synchronizer is used.

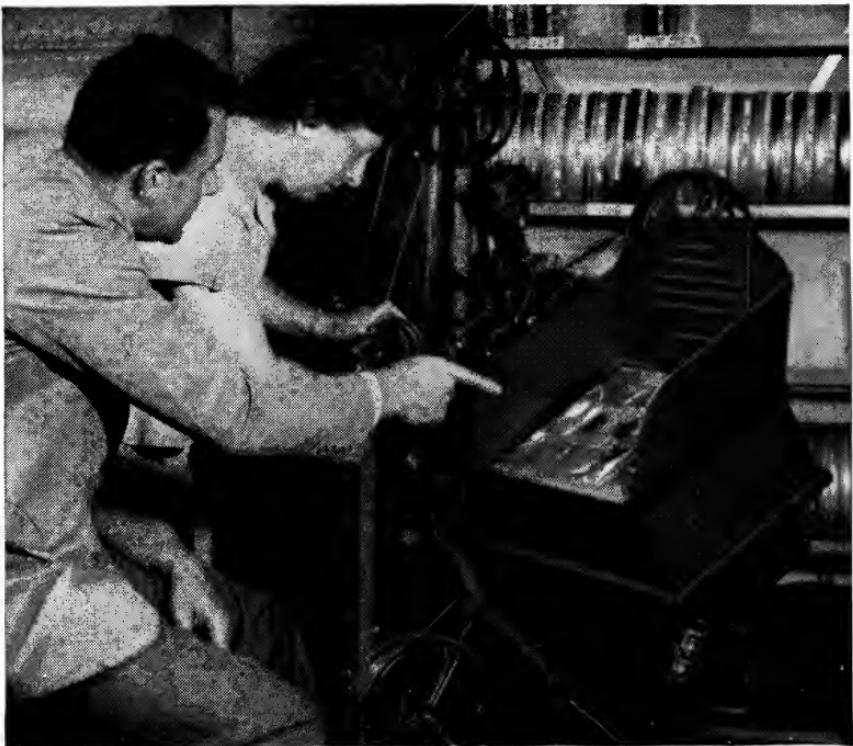
This is a set of sprocket wheels so aligned that when films are threaded through them and placed in synchronization, they will remain so throughout their entire length no matter how much they are run back and forth. Attached to the synchronizer is a counter which keeps a record of the length of film that passes over the sprockets.

The editor's most important mechanical aid is the moviola. This machine performs the function of a projector but is compact, easily threaded, and easily stopped and will run at various speeds either forward or backward. There are silent and sound models. The silent models are used largely as scene moviolas to select the portion of a take that contains the vital action. There are various models of the sound type; some will take either combined prints or separate track and picture prints. When sound track and picture



Ted Nemeth Studios.

A Moviola is used for editing sound and picture.



Willard Pictures.

A director supervising the work of a film editor on a large side-view Moviola.

print are being assembled, they are run synchronously with one motor driving both picture and track at sound speed of 24 frames a second. However, if the editor wishes to run either the picture or track separately, the shaft connecting the two sides of the machine can be uncoupled and the two pieces of film can then be run independently by separate motors.

The handling of film requires a considerable degree of manual dexterity. This skill can be acquired only through long experience. To the uninitiated, an experienced film editor

might seem extremely careless. Film may be piled on the floor in a grand tangle, and reels cranked through the re-winds with reckless abandon. However, years of handling film has taught the editor how to keep it from becoming tangled or broken, and there is such an immense amount of detail in editing a picture that fast work is required. Scratches and dirt on the work print are immaterial, for it is used only as a guide. When the work print has been cut and edited in a satisfactory manner, the original picture negative is cut and spliced to correspond to it exactly. From the negative thus assembled a new print is made, and the work print can then be discarded.

The purely mechanical part of editing can be mastered by anyone who is careful and accurate. However, the artistry of film editing rests in an ability to catch the spirit of the story. Good artistic judgment and a feeling for timing and continuity are required. Such ability can be fostered by training; but since editing is a matter of instinct and judgment, it must be classed more as an art than a science.

As an example of how editing can add tempo to a film, consider the usual technique of Hollywood "western" films. The heroine is about to be burned at the stake by a band of Indians. Approaching at a gallop is the hero leading a rescue party. Only a few shots may have been taken to cover the entire action. The editor starts with a shot of the girl tied to the stake, then a shot of the rescue party; and by an alternating series of such crosscuts, each subsequent cut getting shorter as the rescue party moves closer, a fast and exciting tempo is added to the picture. This builds up to the climax where the rescue party reaches the girl, and both are then shown on the screen at the same time. In such a sequence the editor breaks each camera take into many short scenes.

Every cut that the film editor makes is important in building the continuity and tempo of a picture. When a person enters the camera field, the tempo of a picture is, for example, governed by whether the editor allows a few background frames before the person appears on the screen or starts the scene with the figure barely in the field. He may also start the scene with the figure well into the action.



Ted Nemeth Studios.

An optical camera is used for obtaining fades, dissolves, wipes, and other screen effects.

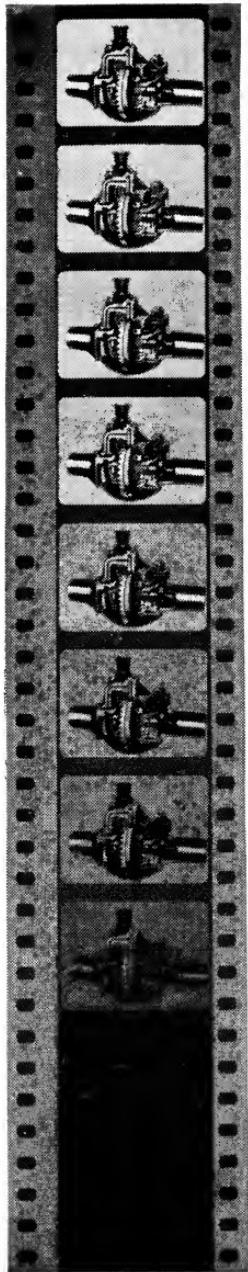
The tempo of a film can also be controlled through the use of optical effects. Such effects take their name from the optical printing machine which combines various images from fine-grain prints and reproduces them on a single duplicate negative. The production of optical effects is the work of a specialist. However, it is up to the editor to decide on the effects desired, assemble the required negative, have fine-grain prints made, and turn these over to the optical

man with complete instructions as to the type and length of the effects.

An understanding of optical effects is best obtained through a knowledge of how they are produced. For example, a gradual closing down of a diaphragm of the optical printer causes the final screen image to fade out into solid black. Opening the diaphragm causes it to fade in. The superimposing of a fade-in over a fade-out results in a dissolve. This is accomplished by making a fade-out covering, for example, 2 ft of film. The lens is then covered to prevent exposure, and the film run back 2 ft. The film is then re-exposed while the image of another subject is faded in for 2 ft. The result is a 2-ft dissolve. On the screen one image will gradually appear through the other.

Since a dissolve is a simpler and less noticeable form of transition than a fade, it is quite generally used in joining scenes where there is a shift of locality. The dissolve is also extremely useful in cushioning the abruptness of a change between two scenes of different photographic quality. The degree of emphasis that the dissolve commands is governed by its length. A dissolve of a foot or less is merely a slight cushioning of a cut. However, a long dissolve makes the screen audience consciously aware that a change is taking place and signifies a corresponding change in story or mood.

Fades are used to separate motion-picture sequences as chapters are used in a book. They are used when a complete break in pictorial continuity is desired. A film is begun with a fade-in and ends with a fade-out. Within the body of the film, fades are usually used together. One scene fades out; there is a short interval of complete blackness; and then a new scene fades in. Fades, like any other optical effect, can be of any length from less than 1 ft to 6 ft or more. The usual length is between 2 and 4 ft.



Fade.

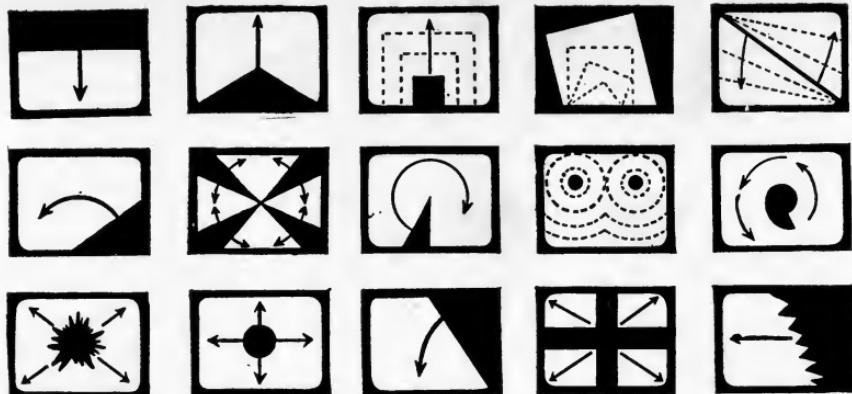


Dissolve.

225



Wipe.



A few of the numerous patterns for wipes through which one screen image is made to replace another.

An optical printer is designed to accommodate various masks. Double exposure through a series of complementary masks permits the gradual replacement of one scene with another. By cutting the masks in various geometric patterns all sorts of effects can be achieved. The edges that separate one design from another can be made as soft as desired by placing the masks out of focus. In the simplest type of masking one scene replaces another as a line gradually moves across the field revealing one picture and concealing another. This is known as a "wipe." Wipes can start on any side of the screen and move across the field, can travel diagonally across the screen, and can open up from the center. In such ways a multitude of different patterns can be produced. However, such effects are strong medicine and are apt to become so interesting in themselves that they defeat their purpose. They should be used only where they serve to carry the action of the story. For example, if a man leaves a room and enters another in a completely different locality, a sense of continuous action may be carried by a wipe moving in the same direction as the action. In nontheatrical pictures very soft wipes, in which the dividing line between one scene and another is greatly diffused, are best, for they give the

desired impression without too much emphasis on the mechanics of the optical process. Sharp wipes are used so generously in theatrical motion-picture trailers that they are associated with theater advertising.

When a series of opticals are used together to create a sequence, the effect is called a montage. In some instances three or more pieces of film are combined to form a single screen image. Each scene may occupy a section of the screen and blend into adjoining scenes, or they may be superimposed one upon another. A montage should not consist of leftover scenes printed together in a jumble. Such treatment, which is not uncommon, is the result of confusion in the mind of the film editor, and it leaves the film audience in the same state. This medium of expression can be effectively used to summarize actions that if presented in their entirety would take too much screen time.

The overuse of optical effects is a common mistake. Very often an effect is added because it seems a long time since one was used. They are too often thrown in at random with the idea that effects give the picture a professional look. Effects used in this manner do more harm than good just as improper punctuation confuses the effect of writing.

When the editing is complete, the picture and track negatives are carefully matched to the work prints. Great care is taken to keep dirt and dust from negatives which are handled very tenderly by the editor and his associates. They wear clean white gloves and avoid touching the surface of a negative whenever possible. A small slip might result in a scratched negative, perhaps doing irreparable damage. When the negative has been matched and placed in synchronization with the sound track, it is ready for final laboratory processing.

SLIDEFILM PRODUCTION

THE PRODUCTION of silent slidefilms is more readily understood by the business executive than any other type of film work. Production involves the assembly of a series of individual art and photographic layouts similar to those used for advertising purposes. Sound, when used, is carried on a common phonograph-type record. Although the purely physical aspects of slidefilm production are simple to comprehend, they are not so simple to execute, for the building of a convincing slidefilm requires talent and experience.

Individual slidefilm frames when projected are similar to large posters. The important difference is that by quickly changing from one picture to another it is possible to develop a continuity of thought. Of course, this could be done by turning from one large poster to another, but it is seldom practical from either a convenience or expense angle to do this except for sales presentations to small audiences.

To obtain continuity of thought each picture frame must fit logically into the sequence so that the audience can be led to the proper conclusions. It is also desirable to control the audience's study and analyzation of each frame. This is called "eye control" and means that when the composition is carefully designed or attention-getting symbols are superimposed, the eye of an observer is led around each picture in the desired manner. In this way unimportant details are not allowed to distract from the purpose of the picture.

Most slidefilms are composed of still photographs, and to obtain satisfactory eye control a great deal of retouching and art work are required. Superimposed arrows, circles, and lettering can call attention to important elements of the

picture. The eye can be led from one important element to another by using these devices in gradually decreasing size. Arrows are usually opaque and often have lettering on them. Since they must not cover important picture details, they are drawn in various styles and sizes to suit best the needs of the particular composition. Airbrush work is used to diffuse or eliminate unimportant picture details that might draw attention from the important points in a picture.

The production of slidefilms closely parallels that of motion pictures, with editing, photography, sound recording and distribution presenting many of the same problems. The problems of production are, however, much simpler. The elements of production normally encountered are

Research	Printing on cells
Script writing	Mounting
Story boards	Airbrush work
Layouts	Original art work
Location photography	Travel expenses
Studio photography	Release prints
Photographic copies	Cans and labels
Retouching	Animating (photographing) frame
Hand lettering	cards on film

Providing a sound recording to accompany a slidefilm requires

One or more narrators	Musical royalties
Rehearsals	Sound effects
Rental of recording studio	Duplication of recordings
Blank records	Shipping containers for records
Musical selections	Labels for records

There is such a close affinity between the production of slidefilms and animated motion pictures that the photographing of slidefilm frame cards onto a strip of motion-picture film is commonly called "animating." An individual frame

from an animated motion picture is very similar to a slide-film frame. Whereas art work from an animated motion picture can be used very successfully for slidefilms, the actual use of individual frame negatives from a live-action motion picture for the production of slidefilms usually results in a very inferior product. A great deal of retouching is required, and the cost of properly doing this type work may be even higher than using original photographs made for the purpose. Difficulty is encountered in making slidefilms from motion pictures, since motion-picture frames are not usually sharp when action is being depicted. When projected as motion pictures, they give the impression of sharpness, but individual frames may be greatly blurred. Standard sound exposure is 24 frames a second, which makes the actual exposure $\frac{1}{48}$ second with a 180-degree shutter. This is not fast enough to freeze anything but very slow action. Furthermore, a slidefilm frame occupies a larger area on 35-mm film than a motion-picture frame which must allow space for the sound track. Slidefilms should, therefore, be made from motion-picture frames only when there is no other way of obtaining the material.

The original photographs for slidefilms are usually made on 4- by 5- or 8- by 10-in. negatives. These are enlarged or masked down to one size and are mounted on "frame cards" which have holes punched in them so that they fit over peg bars on artists' tables and underneath the animation camera. A mask punched with similar holes to fit the peg bars and which exactly delimits the field of the camera is used for registering the art work in the proper position on the card. Frame cards vary in size and also vary in proportions from 7 by 9 to 10 by 12 in. This difference is occasioned by the fact that producers mask down cameras in various ways. Some provide square corners on the frames; others rounded



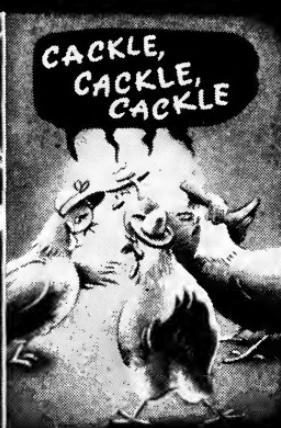
National Safety Council.

A slidefilm frame card ready for photographing onto a strip film. The two holes along the top of the card register over pegs in front of the camera.

corners. A slight masking down of the size of the film image from the maximum that can be obtained is desirable. This gives a little margin of safety and prevents the picture from being cropped off by projectors or by slight variations in film movement between frames. The actual size of a full aperture frame is 0.748 by 0.999 in., which for all practical purposes is in the proportion of 9 by 12.

Slidefilms are sometimes composed entirely of art work. Cartoon figures are often used in such productions to carry the thread of the story from frame to frame or to create added interest and provide a change of pace. Such cartoon figures can also be drawn on cells and superimposed on photographs. This technique is important in illustrating abstract ideas.

Caption material is usually incorporated within the same frame as the illustration that it explains. This is done by cutting down on the size of the picture area and using the space gained to carry lettering against a solid-tone background or by lettering directly over the picture. When the lettering is superimposed on the picture, it is usually printed on a transparent cell. This printing is either done by hand or stamped on by a special hot-press method of printing used



Syndicate Store Merchandiser.

A sequence from a sound slidefilm used in variety stores to improve the service of waitresses. The narrator comments on gum chewing, gossiping, and primping.

for title work on cells. Since the lettering is on a cell, it can be moved at will over the surface of the picture until it is in the exact position desired. If the picture area behind the lettering is not of a sufficiently contrasting tone to make it easily legible, contrast can be obtained by supplying airbrush work on the back side of the cell underneath the lettering. In actual practice this is a much simpler operation than attempting to do such work on the surface of the photograph. Captions are sometimes carried on separate frames preceding or following the frame to which they apply. However, this procedure when used with each frame tends to break the flow of the film. Caption frames can, however, be used profitably to separate different sequences in the film. This provides a break similar to the fade-out and fade-in of the motion picture.

Numbers are usually placed in the lower right-hand corner of each frame. These are important in silent slidefilms to give a person who is conducting a meeting ready identification with his notes so that he does not become confused. In the case of sound slidefilms numbers enable the projectionist to follow the script. In the event that he misses a signal to change a frame, he can quickly get the film and record back in synchronization.

Split frames may be used to show related subject matter, several views of the same thing, and for other types of pictures where actual comparison is important. Inserts and cutaways show entire objects and at the same time reveal important details. Diagrammatic art work on top of photographs serves to bring out important facts. Silhouetting and opaquing attract the eye to important elements in a picture.

Careful laboratory work and close inspection are essential in producing slidefilms. Scratches and blemishes on individual frames do not pass quickly as in motion pictures but are held on the screen for extended periods.



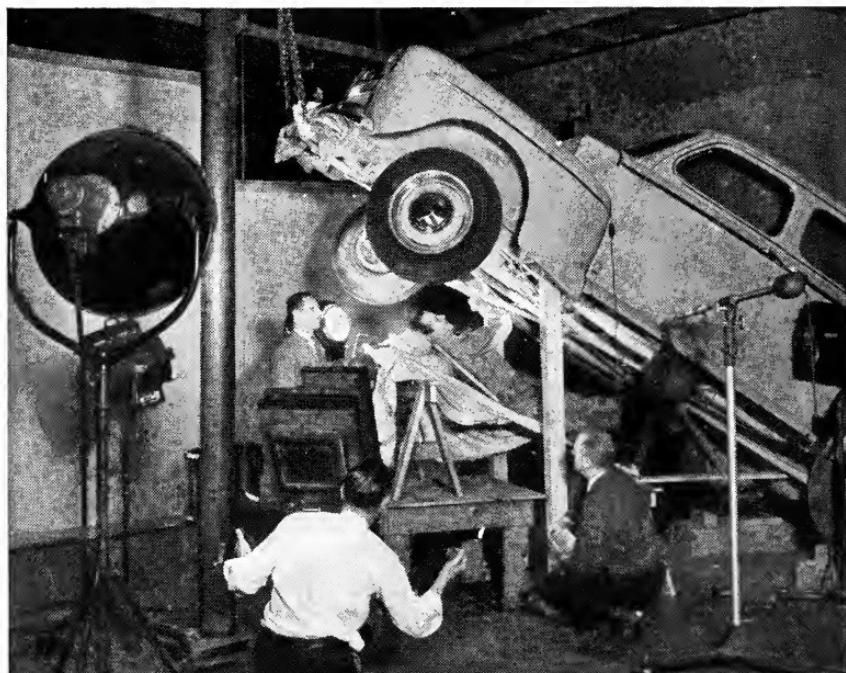
J. H. Wolsieffer.

The setup and the completed photograph of a model scene used in a slidefilm to instruct children in cold prevention.

The double-frame slidefilm, in which the picture is printed lengthwise on the film, is generally used where an organization wishes to produce its own films and has no easily accessible facilities for single-frame animating. There are few cameras that can do single-frame type of work. However, Leica-type 35-mm cameras are readily available. A simple copying stand can be obtained for such a camera, and any one can then produce a slidefilm. The problem of obtaining prints from 35-mm slidefilm negatives of this type is a dif-

ficult one to overcome in most cities, and even in the centers of motion-picture production obtaining one or two prints of a short slidefilm is difficult for those who have no business contact with laboratories. The easiest way to overcome this problem is to animate a picture on color film, which comes back from processing in positive form ready to project. It is, however, necessary to instruct the processer to leave the film in strip form and not cut it into individual pictures. Since color film will give good reproduction of black-and-white photographs and drawings, such film can be used even when there is no color on the original frame cards.

The problems of sound recording for slidefilms are very



Springer Pictures.

Production of a slidefilm for the Ford Motor Company.

similar to those encountered in motion-picture production. The chief difference is that the recording studio, often the same that is used for motion-picture work, transcribes the sound on records instead of on film. The record may be immediately played back after the recording to determine if it is satisfactory. The master record is then sent to one of the phonograph-record-reproducing companies which makes a metal matrice from which duplicate records in quantity may be quickly and inexpensively produced. Most such release records are produced on a nonbreakable, somewhat flexible base to avoid trouble in handling and shipping.

Slidefilms are usually recorded on 12- or 16-in. records at a speed of $33\frac{1}{3}$ rpm. The ordinary phonograph record is recorded at 78 rpm. The economy of space provided by the slower speed recording more than doubles the capacity of a record. A two-sided 16-in. record will provide sound for a half-hour program, enough for 150 or more projected pictures.

Sound slidefilms are generally of the straight narration type. The bell or buzzer that is sounded between words, sentences, or paragraphs signals for the turn to the next frame. Sometimes two or more narrators are used. These may simply provide a change of pace, or they can give a dialogue sort of treatment carrying out a theoretical conversation synchronized with the "action" of the people in the still photographs. This type treatment provides an inexpensive substitute for a dialogue-type motion picture, although the lack of movement in the projected still pictures creates an atmosphere of unreality. The narration for a slide-film should be carefully designed, not only to synchronize with the pictures but to follow closely the movement of the audience's eyes from point to point in an individual projected frame.



Syndicate Store Merchandiser.

For example, let us consider this picture of a waitress who has fallen and imagine the following narration: "Near the sink it is important to see that the floor is kept clean and dry. Otherwise legs may be broken and girls seriously injured." Note that the narration does not follow the eye movement over the picture. The narration order is sink—floor—legs—girls. They are seen exactly opposite: girl—legs—floor—sink.

Revising the narration to follow the picture we have "Girls can be seriously injured and legs broken by slipping on a dirty floor. Keep the floor near the sink dry and clean." Narration that is thus properly keyed to the picture may not seem desirable when considered abstractly from a rhetorical standpoint, but film language has a different set of standards in which the visual leads the way.

Preceding the main title of a slidefilm a focus frame is often used. This frame presents a geometric pattern which outlines the limits of the frame and gives a sharp image,

usually a pattern of thin lines, with which to focus the projector and see that the frame is properly centered and positioned on the screen. The word "focus" is usually printed in large type in the center of such a frame.

Slidefilms can be of any length. Rather than first deciding on the running time of a film, it is best to assemble all the material and then have a script writer build it into a complete production. This will avoid padding on the part of the writer and result in a more convincing story.



Operadio Manufacturing Company.

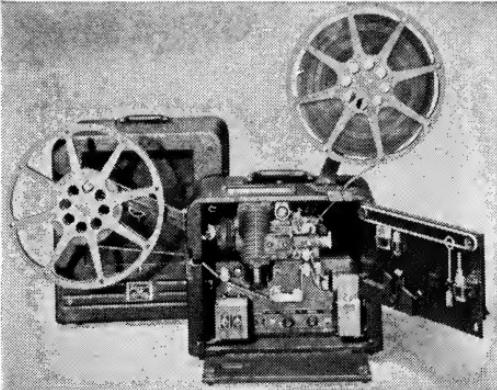
Compact sound-slidefilm projectors are valuable for sales presentations.

Any artist or photographer or combination of the two can provide the basic art work for a slidefilm. The quality of the film will, however, be influenced not only by their abilities but also by the script and the over-all planning which synthesize the individual frames into a smooth-flowing production. So many elements of the graphic arts are called into play in slidefilm production that experience in other lines, no matter how broad, cannot entirely suffice.

SCREENING FILMS

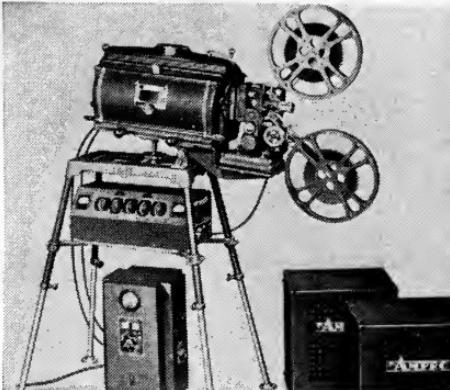
EVEN AFTER a film has been successfully produced, it will not achieve its purpose unless it is properly projected. In 35-mm projection there is reasonable uniformity in projection equipment and a high standard of performance by projectionists, but in the 16-mm field conditions are far from ideal. Here projectors vary greatly; and instead of being permanently installed in a theater, they are more often set up in an improvised manner in a room not entirely satisfactory from either an illumination or acoustical standpoint. Portability of projection equipment is, of course, one of the chief assets of the 16-mm motion picture. Films may be shown under almost any conditions where some measure of darkness can be attained. While 16-mm projection can be completely satisfactory, it must be borne in mind that fidelity of sound and clearness of picture can approach the theatrical standard to which everyone is accustomed only when 16-mm machines are kept well conditioned and run intelligently under the best possible conditions.

Ampro, Bell & Howell, DeVry, Eastman Kodak, RCA Victor, and Victor Animatograph have been marketing portable 16-mm-type sound projectors for many years, and several new producers fortified by wartime experience are entering the field. Most current models sell for about \$500 and vary chiefly in their manner of threading. They all have approximately the same operational efficiency. Selection of a projector will, therefore, be dictated by the personal preference of the buyer for some element of design that appeals to him. These projectors can easily handle groups of several hundred people, and showings to audiences in excess of a



Bell & Howell Company

Sound projector, 16-mm.



Ampro Corporation

Auditorium sound projecting, 16-mm

thousand are not unusual. However, for regular showings in large auditoriums and to outdoor groups where large pictures and high sound levels are required, a projector of the high-intensity arc type should be used.

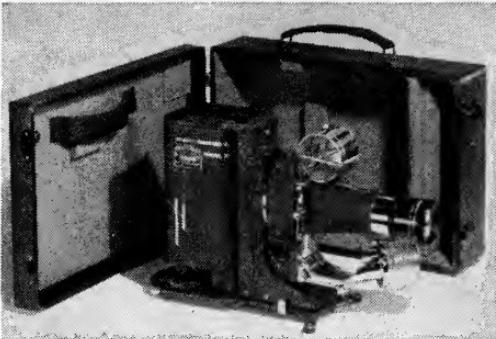
All 16-mm sound projectors accommodate 1,600-ft reels permitting an uninterrupted show of three-quarters of an hour. Many are provided with microphone outlets so comments may be made while the film is running, or they can be used as a public-address system independent of the film. Incandescent projectors are portable and are sometimes referred to as the suitcase type, since they are self-contained units which can be handled and shipped just as ordinary luggage. You can learn to operate a projector in 15 minutes; in fact, they are so simple to use that school children in their early teens operate them. If lenses of various focal lengths are used, the size of the screen picture can be readily adjusted to the size of the room and the audience.

There are self-contained rear-projection automatic projectors for presenting sound-film programs in public places. Models can be obtained that start and stop with the push of a switch or run continuously. No operator is required, and a darkened room is not essential. Ingenious reel mechanisms

provide continuous operation and repetition of film programs without rewinding. Audiences of up to 200 can witness showings on these projectors which can give showings up to 40 minutes in length. However, they are mostly used for short commercial messages to catch the public eye and ear for a few minutes as they pass the machine in public places or pause for a moment at a point of sale. In the future such machines may find much wider use for education and training purposes if simple methods of film threading can be devised. With their use the motion picture will become an everyday tool of the instructor.

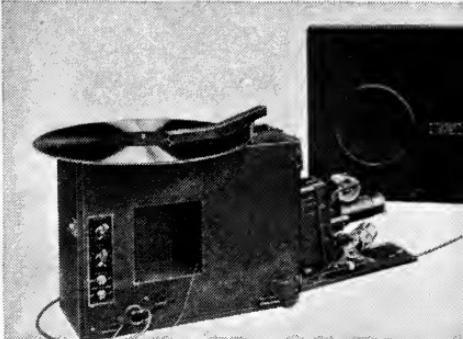
When 35-mm prints are used for business films, the showings are now almost entirely confined to auditoriums and theaters where permanently installed projectors are available. In such locations it is a routine matter to handle the highly inflammable nitrate stock on which most 35-mm films are printed. Safety stock can be used for printing 35-mm films, but there are several reasons why this is not practical. In the first place, the acetate base is more expensive, which makes a processed print cost approximately one-third more than one on nitrate stock. Furthermore, the noninflammable stock does not prove quite so satisfactory in actual use as the nitrate material. Although portable 35-mm projection apparatus is available, its use in most cities involves troublesome inspection and licensing for each location. Union operators usually claim jurisdiction over 35-mm showings.

There are numerous models of slidefilm projectors, both silent and sound, varying greatly in their construction and in the use to which they can be put. At the one extreme we have machines capable of projecting sound-slide messages to groups of several hundred people, while the smaller machines are designed for salesmen to use in demonstrating products to one or two individuals. The extent of sound-slidefilm usage



S. V. E.

Silent-slidefilm projector.



The Magnavox Comp

Sound-slidefilm projector.

can be judged from the fact that the leading equipment manufacturer has sold 60,000 machines. Some silent projectors can accommodate either single- or double-frame slidefilms or 2- by 2-in. individual slides; others handle both large and small glass slides. There are several types of continuous projectors, both sound and silent, which automatically change 2- by 2-in. slides or slidefilms from one frame to another.

Most sound-slidefilm projectors play radio-type transcriptions which turn at $33\frac{1}{3}$ rpm, although some can be adjusted to reproduce phonograph records made to turn at 78 rpm. Each side of a 16-in. slidefilm record ($33\frac{1}{3}$ rpm) has a running time of approximately 14 minutes. Microphone attachments on some projectors permit the operator to inject his own comments or completely supply the narration.

There are numerous types of screens in commercial use. When the audience is grouped well in front of the screen, maximum efficiency is obtained from the beaded-glass type. When it is necessary to place part of the audience well to the side of the screen (that is, when their line of sight makes an angle of over 30 deg with a line from the center of the screen to the projector), it is better to use a smooth white surface. In fact, when the throw is very short and a powerful

light source is used, a white wall or other surface is often more desirable than a beaded screen even for those directly in front of the projector. Beaded screens help increase the reflected light, and under such conditions they give such a brilliant image that it is often hard on the eyes.

Much time is lost in placing and adjusting screens. Therefore, wall screens that are always in position or can easily be hung in the same place are desirable. When it is necessary to set the screen on a stand away from the wall, the position may be marked by a large-headed nail in the floor under the center of the stand and two other nails to indicate the proper angle at which to adjust the screen. For home and executive-office use a Radiant screen concealed in a large picture frame is now available. To all intents and purposes the screen is an attractive oil painting. When needed the screen pulls down from the top of the frame and covers the picture.

In arranging film showings it should be remembered that most training films contain an immense amount of material and that the mind must be thoroughly awake to obtain the maximum amount of benefit. Therefore, a film showing early in the day or after a mild recreation period will prove most profitable. Film showings immediately after eating should be discouraged. A darkened room at such a time tends to make an individual drowsy. Films offer a medium for the concentrated application of the powers of seeing and hearing. Carefully prepared material is presented to the exclusion of irrelevant sights and sounds. Such concentrated material requires intense application on the part of the student. Films can expedite learning to a remarkable extent, but they cannot force learning. If these facts are remembered and an intelligent attitude is taken in the presentation of films, they will perform instruction miracles. If, on the other hand,

they are presented merely as a fill-in and are viewed in a lackadaisical fashion, their value is questionable.

When selecting a room for a screening, whether it be in an office, hotel, or club, it is obvious that one should be found that is easily darkened. Less obvious are the problems of ventilation, noise, and electricity. Often in darkening a room all forms of ventilation are blocked. If the room is then filled with people and a film of any length shown, the air may become so exhausted that the lack of sufficient oxygen will dull the mental processes of the audience. During the war, film showings at many of the Army and Navy training centers suffered much under such conditions. In several cases the situation was so bad that the men found it difficult to keep their eyes open, much less concentrate on the screen. After some showings men were actually asleep, and the cause was generally traced to poor ventilation instead of dull films. When investigating a location for a showing, consider not only the noise present at the time but other possible sources of disturbance at the scheduled time of the showing. Rush-hour motor or train traffic or a noisy corridor or pantry can prove very distracting. Many a show has not been presented at all even after the assembly of an audience owing to the fact that nothing but direct current was available and most projectors work only on alternating current.

In arranging a showing it is important to anticipate every eventuality and to provide spare tubes, exciter, and projector bulbs. If the showing is very important, a new projector bulb should be used. Never gamble on an old and blackened bulb which has served past its rated life and is due to burn out at any time. And most important of all, secure the services of a projectionist of whose ability you are certain. In most localities there are organizations that rent projectors and supply operators. Unfortunately such serv-



Monte Carlo Preview Room, New York.

Special preview rooms fully equipped for projection are available in many cities.

ices are not all of uniformly high standard; therefore, to be absolutely certain of a showing being run perfectly give it careful supervision yourself unless you have had first-hand experience with the projectionist.

For meetings where it is possible to take the audience to a special showing, it is well to hire one of the projection rooms that are available in many large cities. In smaller cities and towns it is often possible to rent the local theater for a morning showing; 35-mm-size films will be required for such showings. Some theaters will even run a business film as part of their regular program if it has any general interest. In order to arrange such showings it is usually necessary to buy a block of tickets which can be sent to the individuals whom you wish to see your film. Theatrical film exchanges,

film service organizations, film libraries, laboratories, and film producers often rent their projection rooms on a hourly or a per reel basis. Rates for such service are very low. In New York several hotels and office buildings and even one night club provide special motion-picture projection rooms suitable for business meetings, cocktail parties, dinners, and previews of nontheatrical films.

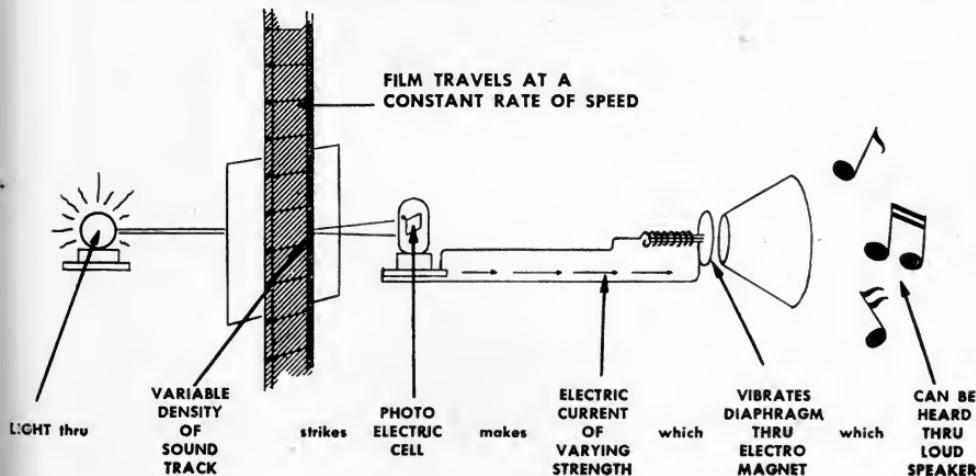
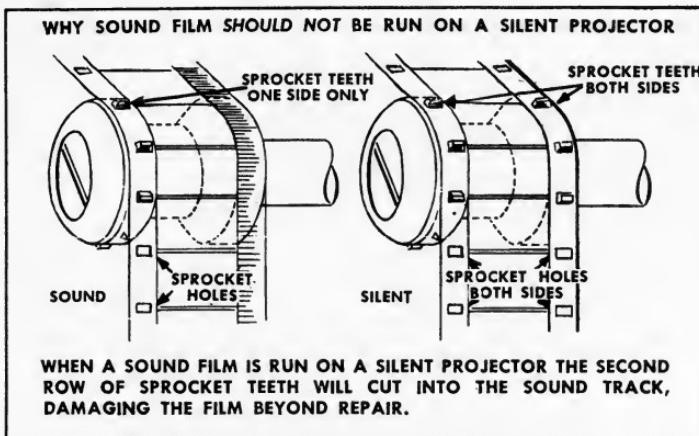
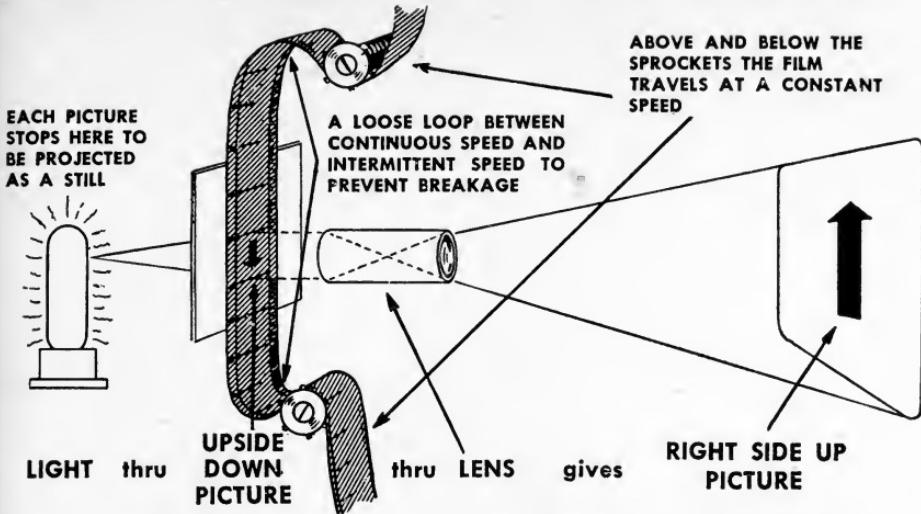
For showings within your own organization several projectionists should be trained. Do not train too many, for they will lose pride in their work and no one will get enough practice to ensure proper performance.

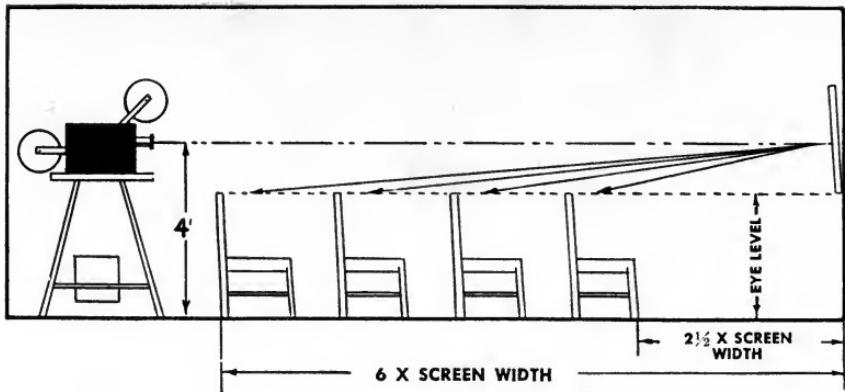
It is most important for the business executive in charge of film showings to know proper projection procedure so that he can supervise projection and thus ensure smooth-flowing, successful presentations. Good projection is a simple matter; but unless proper preparation is made and simple operational procedures are followed, the film can lose much of its effectiveness and valuable time can be wasted. Inefficient projection is also very costly. Many more prints are taken out of service owing to careless handling than from normal wear and tear. Let us, therefore, outline the steps required to ensure good showmanship.

PROJECTION PROCEDURE

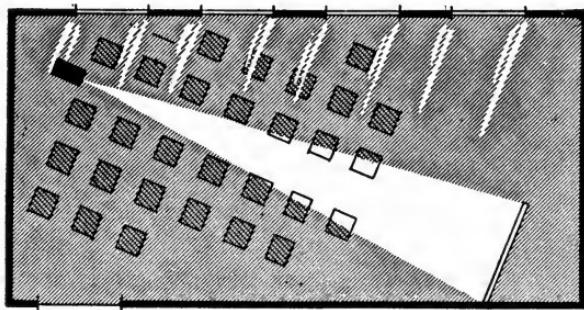
1. *Arrive at the location* at least half an hour before the meeting begins in order that equipment can be installed and checked before the audience arrives.

2. *Place the screen* in front of the audience in a position where it cannot easily be disturbed by people entering the room. The bottom of the screen should be about 6 in. above the eye level of the audience. The first line of seats should be no closer than two and one-half times the width of the screen. Make certain that no extraneous light leaks fall on the screen when the room is darkened and that wind will not cause the screen to move during projection.





PROPER PROJECTOR SETUP



Ency. Brit. Films. audience.

The front seats for a showing should be no closer than two and one-half times the screen width; the rear seats no farther than six times the screen width. Extraneous light should not reach either the screen or the eyes of the

3. Place the projector at the rear of the audience far enough back so that the picture will fill the screen. An assortment of lenses of different focal length will enable you to keep the projector well to the rear of the room so that projector noise will be least noticeable to the audience. The projector must be placed on a stand high enough for the projection to clear the heads of the audience. The axis of the lens should be on a line level with the center of the screen. Tilting the projector will distort the picture, making the top wider than the bottom.

4. Place the speaker as close beside the screen as possible, never behind it or on the floor. The speaker should be at

least table high and preferably on a level with the center of the screen. For very large audiences two speakers may be required, one on each side of the screen. In rooms with poor acoustics it is sometimes better to place the speaker in a corner of the room in front of the audience and point it toward the diagonal corner.

5. *Conceal the wires* from the speaker to projector and from projector to outlet by running them under carpets or close to the baseboard. If someone trips over a wire, he may break the electrical connection and perhaps injure himself. A small piece of carpet or cardboard can be used to cover wires where it is necessary to have them cross an aisle.

6. *Preview* as much of the film as necessary to make certain the projector is running smoothly, that aperture and lens are clean, and to permit sharp focusing of the picture. Square the screen with projector to give an over-all sharp image. Adjust tone and volume. Check on darkness of the room.

7. *Rewind the film*, and carefully rethread it, making certain that the loop between picture and sound aperture is of proper size so that film will be in synchronization. Run the film down to the beginning of fade-in of opening title. You are now ready for the showing. Turn off projection and exciter lamps, and stand by your projector to see that no one puts it out of adjustment. You may use any waiting time before screening to ventilate the room and to arrange for someone to turn out the room lights as you switch on the projector.

8. *Warm up the amplifier* by turning on the sound at least one minute before you begin the show. Check to see that projection lamp switch is on "on" position so that it will light when motor is started.

9. *Start the show* by simultaneously turning on projector

motor and turning off room lights. Stand by projector throughout the showing. Do not adjust the machine unless necessary. A splice may throw the picture slightly out of focus, or a broken sprocket hole may cause you to lose a loop. Make adjustments as required.

10. *Turn off the projector lamp*; turn on room lights; turn off the projector amplifier if no other films are to be run; turn off the projector motor when the film has completely run through the machine.

11. *Clean the machine* immediately after showing. Small pieces of film emulsion that have become lodged around the aperture come off easily when the projector is warm but are difficult to remove when cool. Pack the equipment, and make out records.

While the foregoing procedure is specifically outlined for 16-mm sound-motion-picture showings, it can with only a few minor changes be made applicable to any form of film presentation. In fact, good sound slidefilm procedure parallels it very closely.

It is not usual to rewind films that are borrowed or rented before returning them. Films that have been rewound require two rewindings by a film library in order to inspect them and prepare them for reshipment. If a film is torn or broken, it should not be pinned or otherwise fastened together than by a splice. When a film worker is inspecting a film and running it through his fingers at high speed, a pin or clip joining a film can cause painful injury.

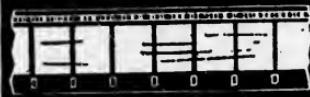
Since the cost of prints is such a major item in the non-theatrical field, it is important that they receive good care. The condition of a print is no better than the poorest treatment that it has received. A print will last for a great number of showings if carefully used, but it is interesting to note that in actual practice one of the large film libraries finds

TYPES OF FILM DAMAGE

Damage

Causes

Remedy



1. Scratches

- a. Dirty rollers, gate, film channel.
- b. Cinching film on reel
- c. Letting loose film fall on floor

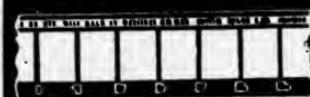
Clean projector, handle film carefully



2. Creases

- a. Stepping on film
- b. Pinching film in closing film can

Handle film carefully

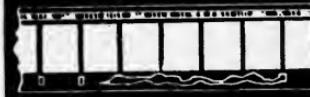


3. Enlarged Sprocket Holes

- a. Too much tension on gate or take-up reel
- b. Jerking movement of take-up reel
- c. Shuttle worn or out of adjustment
- d. Worn sprockets
- e. Loss of loops

Have projector attended to by approved repairman

Rethread



4. Torn Sprocket Holes

- a. Too much tension on gate or take-up reel
- b. Jerking movement of take-up reel
- c. Worn shuttle or sprockets
- d. Dry film; loss of loops

Have projector attended to by approved repairman

Humidify; rethread film



5. Breaks

- a. Faulty film splice
- b. Sudden jerk on take-up reel
- c. Film improperly placed in film channel
- d. Failure to allow loops

Make correct splice; re-thread machine



6. Sprocket Holes on Sound Track or on Film

- a. Running a sound film on silent type projector
- b. Incorrect threading (sound track and sprocket track reversed)
- c. Film failing to engage sprocket teeth

Use appropriate equipment for type of film

Make sure film is on reel properly
Rethread and check



7. Burned Spots

- a. Faulty or sticking fire shutter
- b. Projector running too slow without fire shutter in place

Have projector checked by approved repairman



8. Dirt on Film

- a. Improper or careless storage
- b. Dirty projector
- c. Improper handling of film

Clean projector, clean film, wipe with soft clean cloth and carbon tetrachloride
Handle film carefully

that the prints which they have in service average only 75 showings before they become unsatisfactory for use. Other libraries that do not remove scratched prints from circulation obtain as many as 300 showings from each. The national theatrical average for 35-mm theater use is 200 showings per print. Most film deterioration comes from carelessness. Simple, careful, clean, common-sense handling is all that is required to ensure film longevity.

There is one practice that probably results in more film damage than all other causes combined. This is the projection of a film immediately upon receipt from the laboratory. Such film is called "green film," for it has not had a chance to age properly. After approximately a week has elapsed, the emulsion contracts and the gelatin structure is changed, presenting a much harder surface less susceptible to damage. Small particles of the soft emulsion of a green film accumulate on the projector, become hardened with the heat, and are a prime cause of film scratches. The tendency of green films to stick in a projector is easily noted in slidefilms, where the film is moved manually from frame to frame. It is, in fact, sometimes impossible to move slidefilms just out of the laboratory through the projector without ripping out sprocket holes.

There are several protective processes available for treating films. Their greatest value is their ability to make green films usable. In this connection it is interesting to note that the largest film library in the country does not have its prints treated in any way but stores them for several weeks before use.

Most film damage occurs at the beginning and end of reels. It is, therefore, good insurance to provide ample leader on both ends of the film. If this leader is torn during threading or rewinding, it can be replaced with little trouble or expense.

Power rewinds on projectors spin film around so fast that much film is damaged. Experience shows that considerably less film is damaged when hand rewinds are used. Hand rewinds also permit examination of the film while rewinding. The film can be easily cleaned at the same time by running it lightly between pieces of fine linen that have been saturated with carbon tetrachloride.

An important function of a projectionist is to supply information regarding a showing. His records give a valuable check on the movement and condition of the film and give other vital statistics such as the size of the audience, its composition, and its reaction to the showing.

In the showing of sales films, the value of a film can be judged by such simple yardsticks as the attention or restlessness of the audience, the number of people who leave during a showing, and whether or not word of mouth recommendation of the film results in increased attendance at subsequent showings. Also the questions asked after the showing indicate the value of a film. The simple matter of whether a person takes a piece of printed advertising literature away from a showing or rejects it is a very pointed comment on how well a film has done its job.

Proper projection is perhaps the simplest in all the long chain of activities that lead to the successful presentation of a motion picture. The best projection goes unnoticed by the audience, but the wise business executive will show his appreciation to the projectionist. A few words of approbation will make him know that his work is appreciated to the end that the attention of your audience will always be on the screen and not diverted to a poor operator working over his machine.

FILMS FOR FOREIGN USE

FOR MANY years it has been well understood that Hollywood films are shaping foreign opinion of the United States. America is presented almost always as the land of great abundance where the push of a button will accomplish anything. Audiences come away from these films with an understandable desire to buy American products. However, it is only recently that the American businessman has come to appreciate the value of sponsored films in securing a foreign market.

Many of the sponsored films being made for foreign use today are closely allied to the documentary type. Business, with a goal of creating big markets for the future, realizes that before sales can be made, people must be educated toward the value of its products. Most of the documentary-type films have in the past been sponsored by the government, but astute businessmen are coming to understand that the sponsoring of educational films for foreign markets is not just a philanthropic gesture, but good business.

The motion picture has the ability of transcending barriers of race, religion, and natural background. A film on animal husbandry made for American farmers will, for example, be of interest to farmers throughout the world. But the language of the film must be made understandable. When there is dialogue in the film, this is usually accomplished by superimposing descriptive captions in a foreign language along the bottom of the picture frame. Some pictures have had the sound track dubbed in in a foreign language, but this is very expensive and is not entirely satisfactory, since

it is practically always apparent that the actors on the screen are not really speaking the lines. Fortunately most commercial films are of the narration type, and it is a simple matter to have the narration redone in a foreign language. The cost of making such a translation and obtaining a new sound track in a foreign language ready for the production of release prints represents a cost of only 5 to 10 per cent of the entire cost of the original version of the film.

When adapting films for a foreign market, it is important to see that the translation is not too literal. American expressions, especially colloquialisms, may be translated by ordinary translators to give quite a different meaning from that originally intended. To avoid such trouble it is a safe plan to send a copy of the translation to company representatives in the countries where the film is to be released. They can check the desirability of the translation and can often make slight revisions which will make the narration ring true.

The language into which films are most often translated is Spanish. Producers have done so much of this type work that it is now considered a run-of-the-mill type job. The great amount of work done by the Office of War Information in adapting films to practically every common language also makes it easy to obtain translators and narrators who understand film work whether the track is to be in French, Russian, Italian, Chinese, German, Greek, Japanese, or a lesser known language such as Persian.

The general distribution of commercial films in foreign countries is not usually practical. Where it is and the market for a product warrants such publicity, there is often a local agent or manager who is best qualified to handle the details of remaking a film to suit the needs of the country where it is to be used. Countries where production and re-recording

facilities are not available will probably never offer a worthwhile general audience for sponsored films.

The use of films as a direct selling aid in agent's showrooms and for demonstration purposes in the home or place of business of an important prospective customer offers an



Films for Industry.

"The Age of Precision," a film on machine tools, was recently produced with sound tracks in Italian, French, Portuguese, Spanish, Russian, Swiss, Chinese, and Czechoslovakian.

important field for motion pictures. Large and expensive articles cannot easily be transported to foreign countries for purposes of demonstration. A film can give such a demonstration and often do a better selling job than an actual showing of the product. Where it is not practical to make a special translation to convert a film for this purpose, it can

often be run silently, with the local company representative filling in important details by talking to the customer as the film is projected. A simple musical background has been used with some films with no captions or narration. This really provides an international language—one that all people can understand equally well. For simple demonstrations of equipment exceptional results may be obtained from this type utilization.

Films for such demonstration purposes need not be constructed in the elaborate fashion required for a film that is to obtain general release. Nor do they need be so long. In fact, a 50- or 100-ft silent film showing nothing more than a product in action can prove of immeasurable benefit. Such films can be most advantageously made in color, and a company photographer can take them. In this way new models can be quickly photographed and a print rushed to dealers. Many salesmen have, in fact, taken their own pictures for this purpose when on visits to the home office. Of course, the know-how of a film producer will provide a better result, and one should be consulted if such a program assumes important dimensions.

When it is not practical to use motion pictures for the foreign market, silent slidefilms can be used to advantage. Slidefilms designed for the education of dealers and sales organizations are very useful in foreign countries. Translations can be made from the script and read as the films are shown. Sound slidefilms present similar problems to motion pictures. They are not commonly used in export work. The use of silent slidefilms has the further advantage of simplifying the film-shipping problem. Often 16-mm film presents difficulties in shipping and with customs. Small, compact slidefilms can be shipped easily and freely.

Government agencies, especially the U.S. Department of

State, often take American-sponsored films and distribute them in foreign countries, paying all expenses of translation and printing. This is done only with films that provide an important pictorial record of America and the American way of life. Such films can employ only very subtle selling methods. Blatant and tiresome commercial plugs completely eliminate a film from consideration. However, this does not present a serious problem, for such films have little use even in America.

The old adage "trade follows the flag" has in actuality become largely supplanted by "trade follows the film." The British are well aware of this, and their plans for expanding their world market include many important uses of films. The proper use of motion pictures by American exporters may well prove a vital necessity in meeting the competition for control of world markets.

Chapter 19

TELEVISION AND THE MOTION PICTURE

FILMS WILL be largely used as a basis for television broadcasts, since direct television from live action does not possess all of the advantages of the motion picture as a means of communication. Television cannot, for example, telescope time, and selective editing is possible only in a limited way. Of course, motion pictures cannot show something at the same time that it is happening, but spontaneity is of doubtful value except in the case of news, sporting events, and other competitive activities.

For the daily run-of-the-mill telecasts we can consider a television set as a sound motion-picture projector in the home. That which makes a motion picture interesting will make a television broadcast interesting. Today we must go through considerable trouble, a great deal of expense, or both in obtaining and projecting a 16-mm sound motion picture. Tomorrow, with television, we will need only to flick our wrist and have the choice of a wide selection of audio-visual education and entertainment material.

Apparently the American public is prepared to accept television, for a market survey made by RCA of 11 principal cities revealed that if receivers could be produced for \$200 approximately 60 per cent of the people interviewed would buy them. Although it is difficult to foresee the exact place of television in the home, it has already been ascertained that the novelty of television wears off very quickly. Television will, therefore, have to hold its audience on merit alone. The competition will be stiff, for comparison with Hollywood feature motion pictures (which according to a

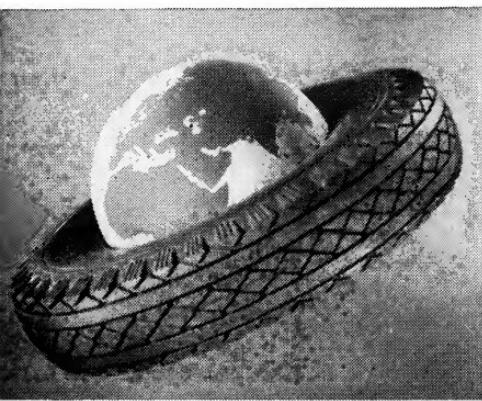
recent survey cost an average of \$462,150 each) is immediately invited. Even when television develops to a point where it reaches an audience comparable to the present large radio networks, the expenditure of a sum of money approaching the cost of a Hollywood production will be prohibitive. This cost differential, together with the poorer quality of television as compared with the theatrical screen, will doubtless make it impractical to produce anything akin to the Hollywood product. Films similar to the nontheatrical productions of today will, therefore, have the field almost to themselves. The future may even find television a medium for disseminating education and information rather than a medium for entertainment.

Since television may cut deeply into present nontheatrical motion-picture distribution, it is opportune to summarize the reasons why films will be assured a leading place in the television structure.

Even if motion pictures offered no other advantage than serving as a form of transcription, permitting the television of a program at a time other than when the sound and image were recorded, it would be an important element in the industry. Such transcriptions, as in radio, can bring a program to the audience at a convenient time, permit reuse of the material at will, and provide the basis for syndicated programs. For many years to come films will serve as the basis for any program that is to be broadcast nationally, since national television networks are not now practical. The television stations now in operation could easily cover the country if they had the same range as radio stations, but the quasi-optical nature of the radio waves used for television greatly limit the range of any one station.

Television signals theoretically travel in a straight line, and therefore television reception of a low-power station is

ARMY vs CORNELL GOOD, YEAR



N. W. Ayer & Son, Inc.

Stills from a motion-picture commercial used in telecasting a football game.

limited to the area falling within the horizon of the transmission antenna. However, if the power is increased within practical limits, refraction of the radio waves will permit reception of an acceptable image up to approximately twice the horizon distance of the broadcast antenna. To increase the range of a station beyond this limit, relays of one type or another must be set up. They may be automatic pickup and rebroadcasting setups worked by remote control, or they may be supplementary stations supplied with their signals by direct coaxial cable connection with the main station.

Coaxial cable is a new type telephone cable which will carry up to 480 telephone messages simultaneously. It is the only type cable suited for transmitting television signals by



Allen B. DuMont Laboratories, Inc.

Present-day television is capable of quality equal to 16-mm motion pictures.

wire for any distance. Since the cost of installing this cable is about \$5,000 a mile, television networks will have to rely largely on the expansion of coaxial cable facilities to meet telephone needs. There are at present only a few thousand miles of coaxial cable in operation. NBC uses about 24,000 miles of wires to link its present network. To connect this network with coaxial cable would cost approximately \$120,000,000.

Television will rely on the motion picture to make network programs practical for at least 10 years unless unforeseen developments occur. Motion pictures furthermore will ensure perfect performance. Mistakes in dialogue and acting and unfortunate camera angles can be eliminated in film editing, and retakes can be made at will. This is extremely important; for unlike radio, scripts will show in television. Therefore, long and tedious rehearsals and memo-

rizing of scripts are required before a convincing television continuity is ready for live-action televising. With motion pictures, scripts can be rehearsed immediately before each short scene and largely memorized as the shooting progresses. If a fluff is made, all that is wasted is a few feet of film instead of the reputation of all those concerned. We all know how many retakes are required in film production. Think of the preparation and rehearsals that would be required if we knew that no retakes could be made. When dealing with children, animals, or other subjects whose actions cannot be precisely foretold, the necessity for using films and securing a satisfactory take by trial and error is obvious.

It is practical to have television cameras at only a few locations for any one show. The motion picture can present scenes taken at various times and places. This ability of the film to lead its audience into numerous widely different situations is one of the basic reasons for the popularity of the motion picture. It is an asset that television will not overlook.



A projector for televising 16-mm films.

Even with live television broadcasts the use of stock footage or specially taken films as transition or background material will be important. Rear projection as used in present-day film production will doubtless offer the same advantages to the electronic camera as it does to the film camera. Television equipment will enable the operator to cut or dissolve from a film image to a live image as readily as the mixer at a recording studio blends one film track with another.

Telecasting from films will give a record, important from a legal standpoint, of what actually went on the air. It will thus eliminate any necessity for recording on film or in any other manner that may be devised a transcription of the picture and sound presentation.

Techniques that have been developed for obtaining unusual effects through retarding or accelerating the speed with which motion pictures are taken will be a necessary intermediate step if we are to show such effects on the television screen. The entire field of animation and the use of slow motion are two outstanding examples of television's reliance on the film. Although optical effects can be obtained to a limited degree with direct television equipment, it may well prove more practical to produce them first on film.

After being televised, films can be used for nontheatrical showings. Film cuttings from one production can profitably be used for later shows, and a file of past films will offer valuable reference material to directors, artists, and producers in planning new and better productions.

Without doubt television will be supported by advertisers. Therefore, the field for producing short commercials will be large. These will require split-second editing and a precision and pace that will be difficult, if not impossible, to match through live-action television. When televising direct, there is always the possibility of costly blunders which could do serious damage to a sponsor's public-relations program.

Imagine, for example, the effect on a cigarette promotional campaign if a smoker before the television camera was suddenly taken with a coughing spell just after a puff of a "throat-soothing" cigarette. Not only will films, because of their dependable character, be good insurance for the advertiser, but the same commercials can be used over and over again.

The union situation in regard to television may best be summarized at the present as one of watchful waiting. However, when television leaves its present experimental period, there probably will be many jurisdictional disputes. The various unions in radio, the theater, and the motion picture will all vie for a leading place in the field.

Distribution has long been the greatest problem facing the nontheatrical producer. Television may be the answer. The first showing of a new film in the future may not be to small audiences such as those of today but in the homes of America in every city and state of the Union.



Slidefilm frame from Pan American World Airways.

APPENDIX

PRODUCERS OF FILMS FOR INDUSTRY

THE FOLLOWING list of producers makes no attempt at being all-inclusive. It is merely a list of reputable, long-established producers who have been serving industry for many years, together with the names of some younger organizations that in the knowledge of the author have demonstrated their ability to do outstanding work. There are probably three times as many nontheatrical producers as are here listed. Among the organizations not listed there are doubtless many of ability and some with outstanding talent. As a start in finding a producer this list may prove helpful; for guidance in selecting a producer read Chap. 9.

CALIFORNIA

- EDDIE ALBERT PRODUCTIONS, 1133 N. Highland Ave., Los Angeles 38
AUDIO PICTURES, INC., 951 N. LaClenega Blvd., Los Angeles 46
DARREL BRADY PRODUCTIONS, Magic Mountain, Calabasas
CALIFORNIA COMMERCIAL FILM Co., 6929 Brighton Way, Beverly Hills
CARL DUDLEY PRODUCTIONS, 8724 Santa Monica Blvd., Beverly Hills
JERRY FAIRBANKS, INC., 6052 Sunset Blvd., Hollywood 28
OWEN P. FONTAINE, JR., PROD., 1755 Franklin St., San Francisco 9
JAM HANDY ORGANIZATION, 7046 Hollywood Blvd., Los Angeles 28
HERB LAMB PRODUCTIONS, INC., 165 N. LaBrea Ave., Los Angeles 36
GENE LESTER PRODUCTIONS, 1487 N. Vine St., Hollywood 28
PHOTO & SOUND, INC., 141 New Montgomery, San Francisco 5
ROCKETT FILMS, 6063 Sunset Blvd., Hollywood 28
ROLAND REED PRODUCTIONS, 8627 Sunset Blvd., Hollywood 46
TECHNICAL FILMS, 5634 Santa Monica Blvd., Los Angeles 28
TRADEFILMS, INC., 666 N. Robertson Blvd., Los Angeles 46
VITAFILM, 6047 Hollywood Blvd., Los Angeles 28

WILDING PICTURE PRODUCTIONS, INC., 5981 Venice Blvd., Los Angeles
RAPHAEL G. WOLFF STUDIO, 1714 N. Walton Pl., Los Angeles

CONNECTICUT

ROLAB, Sandy Hook

DISTRICT OF COLUMBIA

BYRON, INC., 1226 Wisconsin Ave., Washington 7
JAM HANDY ORGANIZATION, Transportation Bldg., Washington 6

ILLINOIS

ATLAS EDUCATIONAL FILM CO., 1111 S. Blvd., Oak Park
BALLARD-BONMAN FILMS, INC., 360 N. Michigan Ave., Chicago 1
CHICAGO FILM STUDIOS, 18 W. Walton Pl., Chicago
FILMCRAFT PRODUCTIONS, 201 W. Jackson Blvd., Chicago 6
FRANCISCO FILMS, 666 St. Clair St., Chicago
JAM HANDY ORGANIZATION, 230 N. Michigan Blvd., Chicago 1
BURTON HOLMES FILMS, INC., 7510 N. Ashland Ave., Chicago 26
PHOTOTRONICS, INC., 730 Elm St., Winnetka
SARRA, INC., 16 E. Ontario St., Chicago 11
WILDING PICTURE PRODUCTION, INC., 1345 Argyle St., Chicago 40

MASSACHUSETTS

BAY STATE FILM CO., INC., 36 Melrose St., Boston
WORCESTER FILM CORP., 131 Central St., Worcester 8

MICHIGAN

CAPITAL FILM PRODUCTIONS, 224 Abbott Road, East Lansing
FLOREZ, INC., 815 Bates St., Detroit 26
JAM HANDY ORGANIZATION, 2900 E. Grand Blvd., Detroit 11
SOUND MASTERS, INC., 3010 Book Tower, Detroit 26
SPRINGER PICTURES, INC., Fisher Blvd., Detroit 2

MINNESOTA

REID H. RAY FILM INDUSTRIES INC., 2269 Ford Parkway, St. Paul 1

MISSOURI

THE CALVIN CO., 1105 East 15th St., Kansas City 6

NEW JERSEY

PRINCETON FILM CENTER, 55 Mountain Ave., Princeton

NEW YORK

- AUDIO PRODUCTIONS, INC., 630 Ninth Ave., New York 19
BRAY STUDIOS, INC., 729 Seventh Ave., New York 19
CARAVEL FILMS, INC., 730 Fifth Ave., New York 19
CENTURY PRODUCTIONS, INC., 12 East 44th St., New York 17
DEPICTO FILMS, 245 West 55th St., New York 19
FRANK DONIVAN ASSOCIATES, 1775 Broadway, New York 19
CARL DUDLEY PRODUCTIONS, 501 Madison Ave., New York
TED ESHBAUGH STUDIOS, INC., 35 West 45th St., New York 19
FILMCRAFT PRODUCTIONS, 2826 Decatur Ave., Bronx
FILMFAX PRODUCTIONS, 995A First Ave., New York 22
FILMS FOR INDUSTRY, 135 West 52nd St., New York 19
FLETCHER SMITH STUDIOS, 1585 Broadway, New York 19
WILLIAM J. GANZ CO., 40 East 49th St., New York 17
GRANT, FLORY, & WILLIAMS, 441 Lexington Ave., New York 17
JAM HANDY ORGANIZATION, 1775 Broadway, New York 19
HARTLEY PRODUCTIONS, 20 West 47th St., New York 19
INDUSTRIAL ARTS PRODUCTIONS, 230 East 46th St., New York 17
HERBERT KERKOW PRODUCTIONS, 480 Lexington Ave., New York 17
LOUCKS & NORLING STUDIOS, 245 West 55th St., New York 19
TED NEMETH STUDIOS, 729 Seventh Ave., New York 19
PATHE NEWS, 625 Madison Ave., New York 22
PATHESCOPE COMPANY OF AMERICA, 580 Fifth Ave., New York 19
LESLIE ROUSH PROD., INC., 119 West 57th St., New York 19
SCHOFIELD PRODUCTIONS, INC., 1600 Broadway, New York 19
SOUND MASTERS, INC., 165 West 46th St., New York 19
SPOT FILM PRODUCTIONS, 339 East 48th St., New York 17
SPRINGER PICTURES, INC., 341 East 43rd St., New York 17
TRANSFILM, INC., 35 West 45th St., New York 19
VISUAL ARTS CORP., 2 West 46th St., New York 19
VOCAFILM CORP., 424 Madison Ave., New York
WEST COAST SOUND STUDIOS, 510 West 57th St., New York 19
WILDING PICTURE PROD., INC., 385 Madison Ave., New York
WILLARD PICTURES, INC., 45 West 45th St., New York 19
EMERSON YORKE STUDIO, 35 West 45th St., New York 19

OHIO

CINECRAFT PRODUCTIONS, 118 St. Clair Ave. E., Cleveland 14
ESCAR MOTION PICTURES, 7315 Carnegie Ave., Cleveland
FILM ASSOCIATES, INC., 440 E. Schantz Ave., Dayton 9
JAM HANDY ORGANIZATION, 310 Talbot Bldg., Dayton 2
WILDING PICTURE PROD., INC., Swetland Bldg., Cleveland

PENNSYLVANIA

DEFRENES & CO., 1909 Buttonwood St., Philadelphia 30
MODE-ART PICTURES, INC., 1022 Forbes St., Pittsburgh

TENNESSEE

SAMUEL P. ORLEANS & ASSOC., INC., 211 W. Cumberland Ave., Knoxville

TEXAS

JAMIESON FILM CO., 2212 Live Oak St., Dallas

WASHINGTON

WESTERN SCREEN ADVERTISING, INC., 3917 East 82nd St., Seattle 5

DISTRIBUTORS OF SPONSORED FILMS

THE FOLLOWING organizations provide mass audience distribution for sponsored films. The sponsor pays for the distribution in various ways (see Chap. 6). Some film producers, not listed here, maintain a distribution service for the exclusive use of their clients. Distributors marked [A] provide outlets for short advertising trailers in the theaters, [T] show one- or two-reel sponsored short subjects in regular theaters, and [E] distribute 16-mm films to nontheatrical, educational, business, and club groups.

ALEXANDER FILM CO. [A], 3200 N. Nevada Ave., Colorado Springs, Col.
ASSOCIATION FILMS (formerly YMCA) [E], 347 Madison Ave., New York
17, N. Y.

CASTLE DISTRIBUTORS CORPORATION [*E*], 30 Rockefeller Plaza, New York 20, N. Y.; Field Bldg., Chicago 3, Ill.; Russ Bldg., San Francisco 4, Calif.

A. V. CAUGER SERVICE INC. [*A*], 10922 Winner Road, Independence, Mo.

WILLIAM J. GANZ CO. [*T*], 40 East 49th St., New York 17, N. Y.

GENERAL SCREEN ADVERTISING [*A*], Wrigley Bldg., Chicago 11, Ill.

JAM HANDY ORGANIZATION [*T*], East Grand Blvd., Detroit 11, Mich.

MODERN TALKING PICTURE SERVICE, INC. [*T & E*], 9 Rockefeller Plaza, New York 20, N. Y.

MOTION PICTURE ADVERTISING SERVICE CO., INC. [*A*], 1032 Carondelet St., New Orleans, La.

PRINCETON FILM CENTER [*E*], Princeton, N. J.

RAY-BELL FILMS, INC. [*A*], 2269 Ford Parkway, St. Paul 1, Minn.

DOUGLAS D. ROTHACKER [*T & E*], 729 Seventh Ave., New York 12, N. Y.

FILM SOURCES

THE FOLLOWING publications describe films that are available for loan, rental, and sale and list the sources from which these films may be obtained. The two publications marked with an asterisk (*) are primarily of interest to those investigating films which are available for academic use.

1,000 AND ONE—The Blue Book of Non-theatrical Films, Educational Screen, 64 East Lake St., Chicago 1, Ill. Issued annually, listing over 6,000 films under 175 subject headings.

EDUCATIONAL FILM GUIDE—H. W. Wilson Company, 950 University Ave., New York 52, N. Y. Lists and gives brief description of over 3,500 films that are available not only for schools but for business and other nontheatrical use. Complete volume issued annually with monthly supplements.

FREE FILMS SOURCE DIRECTORY—DeVry Corporation, 1111 Armitage Ave., Chicago 14, Ill.

*EDUCATORS' GUIDE TO FREE FILMS—Educational Progress League, Randolph, Wis.

THE INDEX OF TRAINING FILMS—Business Screen Magazine, 812 N. Dearborn St., Chicago 10, Ill.

DIRECTORY OF FILM SOURCES—Victor Animatograph Company, Davenport, Iowa.

THE NATIONAL DIRECTORY OF SAFETY FILMS—The National Safety Council, Inc., 20 N. Wacker Drive, Chicago 6, Ill.

***SELECTED EDUCATIONAL MOTION PICTURES**—American Council on Education, 744 Jackson Place, Washington, D. C. (Published in 1942.)

SPORTS, PHYSICAL EDUCATION & RECREATION FILM GUIDE, Business Screen Magazine, 812 N. Dearborn St., Chicago 10, Ill.

EQUIPMENT MANUFACTURERS

HERE AGAIN no attempt is made to list all sources of equipment. The organizations listed are those which are generally considered by leading film users when purchasing new equipment.

Manufacturers of projectors for individual 2 by 2 and large slides are not listed, since there are a large number of such projectors and information on them is available from local photographic stores as their use is principally for amateur purposes.

16-MM MOTION-PICTURE PROJECTORS

AMPRO CORPORATION, 2839 N. Western Ave., Chicago 18, Ill.

BELL & HOWELL COMPANY, 7100 McCormack Road, Chicago 45, Ill.

DEVRY CORPORATION, 1111 Armitage Ave., Chicago 14, Ill.

EASTMAN KODAK COMPANY, 343 State St., Rochester, N. Y.

HOLMES PROJECTOR CO., 813 Orchard St., Chicago 14, Ill.

MILLS INDUSTRIES, INC., 4100 Fullerton Ave., Chicago 39, Ill.

MOVIE-MITE CORPORATION, 1105 East 15th St., Kansas City 6, Mo.

NATCO, INC., 2638 N. Pulaski Road, Chicago 39, Ill.

RADIO CORPORATION OF AMERICA, RCA-Victor Division, Camden, N. J.

VICTOR ANIMATOGRAPH COMPANY, Davenport, Iowa.

SILENT-SLIDEFILM PROJECTORS

AMPRO CORPORATION, 2839 N. Western Ave., Chicago 18, Ill.

DEVRY CORPORATION, 1111 Armitage Ave., Chicago 14, Ill.

GOLDE MANUFACTURING COMPANY, 1220 W. Madison St., Chicago 7, Ill.

PICTURE RECORDING CO., 1240 Lawrence Ave., Chicago 40, Ill.
SOCIETY FOR VISUAL EDUCATION, INC., 100 East Ohio St., Chicago 11, Ill.
THREE DIMENSION COMPANY, 500 N. Dearborn St., Chicago 10, Ill.
VIEWLEX INC., 35-01 Queens Blvd., Long Island City 1, N. Y.

SOUND-SLIDEFILM PROJECTORS

MAGNAVOX COMPANY, INC., Fort Wayne, Ind.
O. J. MCCLURE TALKING PICTURES, 1115½ West Washington Blvd,
Chicago 7, Ill.
OPERADIO MANUFACTURING COMPANY, St. Charles, Ill.
OPTRON INC., 223 W. Erie St., Chicago 10, Ill.
PACIFIC SOUND EQUIPMENT CORP., 130 N. Beaudry Ave., Los Angeles,
12, Calif.

PROJECTION SCREENS

DA-LITE SCREEN CO., INC., 2723 N. Crawford Ave., Chicago 39, Ill.
RADIANT MANUFACTURING CORP., 1181 W. Superior St., Chicago 22, Ill.

PERIODICALS

AMERICAN CINEMATOGRAPHER [P & A], 1782 N. Orange Dr., Hollywood
28, Calif. Issued monthly.
ASSOCIATED FILM NEWS [I & E], 347 Madison Ave., New York 17, N. Y.
Six annually.
BOX OFFICE [T], 9 Rockefeller Plaza, New York 20, N. Y. Issued weekly.
BUSINESS SCREEN [I], 157 E. Erie St., Chicago 11, Ill. Eight annually.
EDUCATIONAL SCREEN [E], 64 E. Lake St., Chicago 1, Ill. Ten annually.
THE EXHIBITOR [T], 1600 Broadway, New York 19, N. Y. Issued weekly.
FILM & RADIO GUIDE [E], 172 Renner Ave., Newark 8, N. J. Nine annually.
FILM DAILY [T], 1501 Broadway, New York 18, N. Y. Issued daily.
FILM NEWS [E & I], 15 W. 38th St., New York 18, N. Y. Issued twice
monthly.
FILM WORLD [I, E, P], 6060 Sunset Blvd., Hollywood 28, Calif. Issued
monthly.
HOLLYWOOD QUARTERLY, 350 Royce Hall, University of California, Los
Angeles 24, Calif. Published quarterly.

HOME MOVIES [*A*], 6060 Sunset Blvd., Hollywood 28, Calif. Issued monthly.

MOTION PICTURE DAILY [*T*], 1270 Sixth Ave., New York 20, N. Y. Issued daily.

MOVIE MAKERS [*A*], 420 Lexington Ave., New York 20, N. Y. Issued monthly.

PHOTOGRAPHIC AGE [*I*], 460 Bloomfield Ave., Montclair, N. J. Issued monthly.

SEE AND HEAR [*E*], 812 N. Dearborn St., Chicago 10, Ill. Eight annually.

THE 16-MM REPORTER [*I, E, P*], 1819 Broadway, New York 23, N. Y. Published twice monthly.

[*A*] Amateur; [*E*] Educational; [*I*] Industrial; [*P*] Professional; [*T*] Theatrical.

CATALOGUES

COMMERCIAL FILM distributors from whom catalogues describing films for purchase, rental, and free loan may be obtained:

ASSOCIATION FILMS, 347 Madison Ave., New York 17, N. Y.; 19 S. LaSalle St., Chicago, Ill.; 701 Burt Bldg., Dallas 1, Tex.; 351 Turk St., San Francisco, 2, Calif. A catalogue entitled "Selected Motion Pictures" listing many films available for free showing and others for small rental charge.

BRANDON FILMS, 1600 Broadway, New York 19, N. Y. Catalogue of instructional, documentary, and entertainment films for rent.

BUSINESS EDUCATION VISUAL AIDS, 330 West 72nd St., New York 23, N. Y. Catalogue of films for rent and sale on typewriting, accounting, shorthand, office practice, and distributive education.

CASTLE FILMS, Inc., 30 Rockefeller Plaza, New York 20, N. Y.; 135 S. LaSalle St., Chicago 3, Ill.; Russ Bldg., San Francisco 4, Calif. Distributors of films for industry, no projection fee to group using them. Contracting distributors for sale of films of the U.S. Office of Education. Produce and sell many short films covering sports, travel, adventure, historic events, and cartoons.

FILMS INC., 101 Marietta St., Atlanta 3, Georgia.; 314 S. W. 9th Ave., Portland 5, Ore.; 64 E. Lake St., Chicago 1, Ill.; 1709 West 8th St.,

Los Angeles, 14, Calif.; 330 West 42nd St., New York 18, N. Y.; 101 N. Akard St., Dallas 1, Tex. Rent feature pictures. Publish catalogues showing films available for restricted and unrestricted rental. Sell educational film shorts.

IDEAL PICTURES CORP., 28-34 East 8th St., Chicago, Ill.; 2024 Main St., Dallas 1, Tex.; 714 18th St., Denver 2, Colo.; 926 McGee St., Kansas City 6, Mo.; 2408 West 7th St., Los Angeles 5, Calif.; 18 S. Third St., Memphis 3, Tenn.; 132 S. Miami Ave., Miami 36, Fla.; 826 Baronne St., New Orleans 13, La.; 8th & Hennepin Sts., Minneapolis, Minn.; 915 S. W. 10th Ave., Portland 5, Ore.; 108 W. 8th St., Chattanooga 2, Tenn.; 219 E. Main St., Richmond 19, Va.; 52 Auburn Ave., N. E., Atlanta, Ga.; and New York Distributor Bertram Willoughby Pictures, Inc., 1600 Broadway, New York 19, N. Y. Commercial, educational, and entertainment films.

JAM HANDY ORGANIZATION, 2900 E. Grand Blvd., Detroit 11, Mich.; 1775 Broadway, New York 19, N. Y.; Transportation Blvd., Washington 6, D. C.; 310 Talbot Bldg., Dayton 2, Ohio; 230 N. Michigan Ave., Chicago 1, Ill.; 7046 Hollywood Blvd., Los Angeles 28, Calif. Catalogue of slidefilms and motion pictures to help instructors.

MODERN TALKING PICTURE SERVICE, 9 Rockefeller Plaza, New York 20, N. Y.; 142 E. Ontario St., Chicago 11, Ill. Primarily distributors of sponsored films. Some training films for sale and rental.

RKO RADIO PICTURES, INC., 16-mm Division, 1270 Avenue of the Americas, New York 20, N. Y. RKO features and short subjects including Walt Disney productions.

UNITED WORLD FILMS, INC. (formerly Bell & Howell Filmsound Library), 7100 McCormack Road, Chicago 45, Ill.; 30 Rockefeller Plaza, New York 20, N. Y.; 716 N. LaBrea Ave., Hollywood 38, Calif.; 1221 G. Street N.W., Washington 5, D. C. Three catalogues, one each on educational, recreational, and religious films.

MOTION PICTURE DATA AT SOUND SPEED

<i>Projection period</i>	<i>Film length, ft</i>	
	<i>35 mm</i>	<i>16 mm</i>
$\frac{2}{3}$ sec	1	$\frac{2}{5}$
1 sec	$1\frac{1}{2}$	$\frac{3}{5}$
$1\frac{2}{3}$ sec	$2\frac{1}{2}$	1
10 sec	15	6
30 sec	45	18
1 min	90	36
1 min $6\frac{2}{3}$ sec	100	40
10 min	900	360
2 min $46\frac{2}{3}$ sec	250	100
11 min $6\frac{2}{3}$ sec	1,000*	400*
27 min $46\frac{2}{3}$ sec	2,500	1,000
30 min	2,700	1,080
1 hr	5,400	2,160

1 foot 35 mm contains 16 frames.

1 ft 16 mm contains 40 frames.

* One full reel. However in actual practice one reel seldom exceeds 950 ft of 35-mm film or 380 ft of 16-mm film. The average reel contains film for a 10-minute showing.

GLOSSARY

ACETATE. A slow-burning transparent substance used as a film base and for animation cells.

ACTINIC. The effect of light rays on film.

ACTION. Movement taking place either before the camera or on the film.

ACTION OUTLINE. A description of the picture sequences and action of a film.

ANGLE. The viewpoint from which the picture was taken.

ANIMATION. The photographing of a series of static technical or cartoon drawings or models one frame at a time so that slight changes in position of each succeeding drawing give the effect of motion when projected in rapid sequence on a screen.

APERTURE. The opening of the diaphragm in a lens. In projection the frame size opening that permits the light to strike the film and project it through the lens.

BAFFLE. A portable wall or heavy mat hung beside a set to absorb sound and prevent echo.

BARN DOOR. A set of black hinged shutters in front of a light to control the spread of its rays.

BASE. The transparent film that supports the photographic image.

BIPACK. Color film with only two color-sensitive emulsions.

BLIMP. A soundproof enclosure that fits over the camera and silences the sound of the motor and camera mechanism.

BLOOP. Sound caused by a splice across a sound track.

BLOOPING. The opaquing of the track section of a positive film splice to eliminate the bloop noise. In the negative, punching a tapered hole in the track accomplishes the same purpose.

BOOKING. The reservation of films for a specific screening date.

BOOM. A long pole that suspends the microphone over a scene. A crane that carries the camera.

BROAD. A rectangular floor light for flat lighting.

BUTTERFLY. A large disk of gauze mounted on the end of a pole for cutting down the intensity of sunlight in a close-up.

CATWALK. The runway above and around a studio set for electricians handling overhead lights.

CEMENT. The adhesive used in joining two pieces of film.

CHANGE-OVER. The change from one projector to another without interrupting the picture or sound.

CHANNEL. The sound system from microphone through to film recorder.

CLAPPER. Two strips of wood hinged together. They are struck together before a take and register on both picture and sound track for later use in synchronization. Sometimes called a clapboard.

COLOR CORRECTION. The altering of the tonal value of colored objects by the use of filters.

CONSOLE. The equipment control panel used in sound recording.

CONTINUITY. The relationship of scenes and sequences in the picture one to another.

CUE. A signal for the start of narration, action, or sound effect.

CUT. The change from one scene to another in which successive frames contain the last frame of one scene and the first frame of the following scene. "Cut" is also used as an order to stop the camera and as a term describing the editing, assembling, and joining together of film.

CUT-BACK. A scene that is a repetition of or continuation of previous action that has not been shown on the screen for some time.

CUTTING. Assembly, arrangement and splicing of film. See *Editing*.

DAILIES. The rush prints of each day's shooting.

DENSITY. The degree of opaqueness of a negative or print.

DEPTH OF FOCUS. The field before a camera that registers in sharp focus on the film.

DIAPHRAGM. A masking device in a lens. It controls the amount of light that reaches the film.

DIFFUSER. A screen used to soften artificial or natural light.

DIRECTOR. The individual actively in charge of composition and action in a motion picture.

DISSOLVE. An overlapping fade-out of one picture and fade-in of another. The first scene gradually disappears while the ensuing scene appears to emerge from it.

DOCUMENTARY FILM. A film purporting to show life exactly as it is, usually expounding some moral.

DOLLY. A small hand truck which carries camera and cameraman, enabling the camera to be moved while shooting scenes.

DOUBLE EXPOSURE. Photographing two scenes, one on top of the other on the same piece of film. In this way special effects are obtained.

DOUBLE SYSTEM SOUND CAMERA. Sound recording in which synchronous motors drive the film through the motion-picture camera and at the same time drive another roll of film past a light valve for sound recording. The two pieces of film are later combined in printing.

DUBBING. Mixing several sound tracks and re-recording on a single combined track.

DUPE. A duplicate negative made from a positive print.

EDITING. The final arranging, shortening, and eliminating of scenes in a picture and synchronizing them with the sound track. While "editing" is often used interchangeably with "cutting," a cutter is specifically one who does the manual part of the work.

EMULSION. The light-sensitive coating on film.

EXCITER LAMP. Electric light bulb in a projector which projects a ray of light through film to the photoelectric cell.

EXPOSURE. The amount of light reaching the film, controlled by the diaphragm of the lens, degree of opening of the shutter, and speed of the camera.

FADE-IN. The gradual appearance of screen image from blackness.

FADE-OUT. The gradual disappearance of a screen image into total blackness.

FAKING. Arrangement of articles in front of the camera in some unnatural position that, when photographed, will pass as authentic.

FIELD. The picture area that will be recorded on the film.

FILL-IN LIGHT. A light used to soften shadows.

FILM STRIPS. Strips of motion-picture film that are projected one frame at a time. They are usually called slidefilms when used for business purposes.

FILTER. Colored glass or gelatin used in front of the lens to absorb certain light rays and change the color rendition of the scene on the film.

FINDER. A device for observing the image being recorded on the film.

FINE GRAIN. Any fine-grain photographic emulsion, specifically a fine-grain print to be used in making a duplicate negative.

FISHPOLE. A hand boom for suspending the microphone over the head of actors.

FIXING. The removing of all undeveloped photographic emulsion from a film.

FLANGE. A spool reel with one side omitted so that film wound on it may be removed in a roll for storage.

FLARE. A light reflection or leak that when recorded on the film eats out the image and causes a white streak.

FLASH. An extremely short scene.

FLAT. Lack of contrast in a negative or positive. Also a board or other surface used in set construction.

FLOOD. A floodlight used to illuminate wide areas.

FOLLOW FOCUS. To change the focus of the lens while the camera is running in order to produce a constantly sharp image of an object that is moving toward or away from the camera.

FRAME (noun). Each individual picture on a strip of film.

FRAME (Verb). To adjust the picture frame in projection so that it coincides with the aperture of the projector.

FREQUENCY. The value scale of sound tones, measured in kilocycles.

GAFFER. A head electrician.

GAMMA. A technical laboratory term meaning contrast, referring to the contrast developed in the laboratory processing and quite independent of scene contrast.

GATE. The hinged retainer plate that holds the film against the projection aperture.

GOBO. A black screen used to prevent light from falling on a camera lens.

GRIP. A handy man about the set, the equivalent of a stagehand.

HALATION. A blurred effect that sometimes occurs, surrounding bright objects. In reality a blending of intense light over into darker areas.

HALF TONES. The middle graduations between high lights and shadows.

HARDNESS. Excessive contrast in negative or print.

HIGH KEY. Pictures whose tones all lie toward the lighter end of the scale.

HIGH LIGHTS. The part of the picture where the greatest amount of light is concentrated.

HOT. Too much light on a subject.

IMAGE. The photographic likeness recorded on the film.

INSERT. A scene inserted in the picture that is unlike the general run of the picture.

IRIS. The diaphragm of a camera lens.

IRIS-IN. The gradual appearance of a picture from a small spot until it fills the screen through the medium of a constantly enlarging circle.

"Iris-out" is the reverse action in which the circle closes down until it disappears.

JUICE. Electric current.

JUICER. An electrician.

KEY NUMBERS. Footage numbers marked along the edge of film at 1-ft intervals.

LATITUDE. The variations in exposure that are possible without affecting the picture quality.

LEADER. Blank film at beginning and end of a reel.

LIGHT. A notch cut in the side of a negative indicating a change in scene requiring different exposure when making a print.

LIP SYNCHRONIZATION. Direct recording of sound from a scene that is being photographed.

LOCATION. Any location outside the studio where a picture is taken.

LONG SHOT. A distant view. When people are included, they are far enough away so that their features are not clearly discernible.

MEDIUM SHOT. A relative term halfway between a close-up and a long shot.

MIX. The recording or re-recording of sound in which various sounds are blended together.

MODULATION. A variance of sound usually specifically applied to the irregular pattern of the recorded sound track.

MONTAGE. A series of pictures either following each other or superimposed one on the other in a quick series of optical dissolves or wipes to create a unified effect or impression.

MOVIOLA. A machine for viewing film in small size and for listening to the sound track.

NARRATOR. An offstage or background voice.

OPTICAL. A photographic optical process for duplicating films, permitting the combining of two or more frames in one, creating wipes, montages, dissolves, and other effects.

ORTHOCHROMATIC. A film that is not particularly sensitive to orange and red, thus causing them to appear slightly darker on the screen than they do when panchromatic film is used.

OSCILLOGRAPH. A testing device to check frequency vibration.

OVEREXPOSURE. Too long an exposure, resulting in a dense flat negative that gives a light print with poor contrast.

PAN. A gradual swinging of the camera in any direction. A panorama shot.

PANCHROMATIC. A film sensitive to all colors.

PARALLEL ACTION. Alternate scenes of actions supposed to be taking place at the same time.

PENCIL TEST. The photographing of rough pencil drawings in animation to check the smoothness of the movement.

PHOTOELECTRIC CELL. A device that has the ability to transmit electric current in varying degrees directly in proportion to the amount of light that is permitted to fall on it.

PLAYBACK. A recording made on phonograph records simultaneously with a sound recording for immediate checking of the recording.

POLAR SCREEN. A plane polarizing filter placed before lens or over the light source to cut down reflections or to change color values.

POSITIVE. A projection print from the negative. The true picture.

PRESCORING. Recording sound prior to the shooting of the picture.

PROCESS SHOT. Photograph combining real photography with projected backgrounds or with a model set or drawing.

RAW STOCK. Unexposed motion-picture film.

REAR PROJECTION. An image projected from behind onto a translucent screen which is then used as a background for studio shots.

RECORDING. The process of recording voice, music, or sound effects on film or phonograph disks.

REEL. The spools with flanges on which film is wound. "One reel" is 1,000 ft in 35 mm and 400 ft in 16 mm.

RE-RECORDING. The transfer of one or more recorded tracks or disks to a new track or disk. The process also permits corrections in level and adjustments in tone.

REVERSAL. Film that is processed in such a way as to result in a positive print without the use of a negative. This process is not used in 35-mm motion-picture work but is largely used in 16-mm production.

REWIND (noun). A cranking device for transferring film from one reel to another.

REWIND (verb). To rewind a film after it has been projected so that it is ready for reshowing.

ROUGH CUT. A rough assembly of scenes in their proper order but not cut down to their final length.

RUNNING SHOT. A picture in which the camera moves along with the action.

RUSHES. First prints from a film, same as dailies.

SCENARIO. A complete written guide of a motion picture, describing story and action. Usually applies to a dramatic or theatrical production.

SCENE. A single sequence in the picture which may consist of one or more shots.

SCORE. The music for a film.

SCRIM. A diffuser for softening the light that falls on a subject.

SCRIPT. A complete written guide for a motion picture. The term is generally used rather than "scenario" for nontheatrical motion pictures.

SCRIPT GIRL. A girl who keeps notes on the details of action, dialogue, sets, and locations.

SET. A scene constructed in the studio.

SETUP. The position of camera as set up for a scene.

SHUTTER. The revolving disk between lens and film. An open segment permits exposure; when the lens is masked by the opaque area of the shutter, the film is moved.

SHUTTLE. The mechanism in a camera that transports and registers the film for each individual exposure.

SINGLE SOUND SYSTEM. A camera that records picture and sound on the same piece of film.

SHOT. A single continuous run of the camera.

SLATE. The identification of a scene in a film by writing on a small board which is photographed for a few frames at the beginning of a scene.

SLIDEFILM. Strips of motion-picture film that are projected one frame at a time.

SLOW MOTION. The slow movement of objects on the screen produced by photographing more frames per second than are projected per second.

SOUND TRACK. The portion of the film devoted to the recording of the sound.

SOUP. Slang term for developer.

SPLICE. The joining together of two pieces of film with film cement. Also the joint itself.

SPROCKETS. The teeth on drums that accommodate sprocket holes punched along the side of film.

STANDING BOARD. An upholstered board with arms to enable actors to rest without creasing clothes.

STILL. A still photograph showing a scene from a film. An enlarged frame from a film.

STOCK SHOT. A scene not taken especially for the production but taken from files. A library shot.

STOP. The degree of opening of the lens diaphragm.

STOP MOTION. Film taken by exposing one frame at a time.

STRIKE IT. Take down a set.

SYNCHRONIZATION. The matching of sound track to picture so that sound exactly coincides with picture action; often abbreviated to "sync."

SYNC MARK. Corresponding marks on picture and track by which they can be placed in synchronization.

TAKE. A single shot picture and/or sound. Sometimes specifically a satisfactory or usable shot.

TRACK. The film or section of a film used for the sound recording.

TRUCKING. A traveling shot in which the camera moves position during the exposure.

VOICE-OVER. Narration-type recording as opposed to live sound.

WILD. Recording in which the narration is prerecorded. The picture is taken to fit the sound.

WIPE. A transition from one scene to another in which a new scene gradually replaces the old one in some gradually increasing geometric pattern. It may have either a hard or soft edge.

WORK PRINT. A print used in editing and cutting to determine the final composition of the film.

ZOOM. Movement of the camera directly toward a subject during exposure.

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